

A Priceless Advantage:
U.S. Navy Communications Intelligence and
the Battles of Coral Sea, Midway, and the Aleutians



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ERRATA

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p.15: In second paragraph, second line, first word should be "Huckins" not "Huggins."

p. 26: Captions under the photos should read "Japanese Aircraft Carrier *Hiryu*" and "Japanese Aircraft Carrier *Soryu*," respectively.

p. 56: Caption under photo should read "Japanese Aircraft Carrier *Akagi*."

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A Priceless Advantage: U.S. Navy Communications Intelligence and the Battles of Coral Sea, Midway, and the Aleutians

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Foreword

This volume is the third in the Center for Cryptologic History's series documenting United States communications intelligence in World War II. The first volume was Dr. George F. Howe's *American Signal Intelligence in Northwest Africa and Western Europe*, subsequently released to the National Archives and Records Administration as SRH 391. Frederick Parker's *New View to Pearl Harbor* followed; this was the first volume in a major project documenting U.S. Naval COMINT in the Pacific Theater in World War II.

As was the case in his earlier work, Mr. Parker has diligently researched and analyzed the surviving COMINT records held by NSA, the military services, and the National Archives. The process of locating and identifying these World War II COMINT records has been, and continues to be, agonizingly slow. Contrary to the impression held by some outside historians, these documents are not neatly marked and arranged in drawers awaiting our use.

But the time and effort have been extremely worthwhile. Mr. Parker has combined meticulous research and careful analysis of the COMINT and then has blended the COMINT history with the facts from published accounts of the military operations involved.

The cryptologic profession has long been aware of the role played by COMINT in the Battles of Coral Sea and Midway and that Midway was a pivotal action in the naval war in the Pacific. Mr. Parker has provided the reader, at last, with a masterfully detailed account of the COMINT associated not only with the Coral Sea and Midway actions but also with the events in the Aleutians, often neglected or given superficial treatment by some historians. And, as Mr. Parker documents, there is a very interesting story of the non-use of COMINT by the commander of the U.S. task force.

Beyond the treatment of the role of COMINT in the battles, however, Mr. Parker has provided the reader with a marvelous context from which to view the unfolding history of U.S. naval COMINT in the Pacific. He has presented the reader with a continuity often lacking in accounts of individual events or actions. The history of U.S. naval COMINT in World War II cannot be viewed simply as related to specific battles or events but as an evolving, dynamic, changing entity with a recognizable history of its own. Mr. Parker's works provide a continuing examination of the organization, personnel, policies, and operating procedures of the small COMINT organization of the 1930s as it desperately struggled to both meet the exigencies of war plan for the future. Mr. Parker has provided the cryptologic profession, the academic community, and the public at large, with an exciting history. Future volumes are eagerly awaited.

Mr. Parker has been a reemployed annuitant working in the Center for Cryptologic History. The Center lost all of its reemployed annuitants late in 1992. Since that time, Mr. Parker has rejoined the Center as a cleared volunteer, and continues to make invaluable contributions to U.S. COMINT history and to U.S. history.

Henry F. Schorreck
NSA Historian

A Priceless Advantage: U.S. Navy Communications Intelligence and the Battles of Coral Sea, Midway, and the Aleutians

If I am told to fight regardless of the consequences, I shall run wild considerably for the first six months or a year, but I have utterly no confidence for the second and third years Now that the situation has come to this pass [the Tripartite Pact] I hope you will endeavor for avoidance of an American-Japanese war.¹

Admiral Isoroku Yamamoto,

Commander in Chief, Japanese Combined Fleet, to Prince Konoye, October 1940.

Historians in Japan and the United States have already written much about the period between 7 December 1941 and the Battle of Midway early in June 1942, a period when the United States was on the defensive in the Pacific and U.S. policymakers were unsure how the war against Japan should be prosecuted. Using their histories as background, this study focuses on an obscure but important program, the U.S. Navy's communications intelligence (COMINT) effort, which, despite its size and the trauma of Pearl Harbor, proved to be an unprecedented, sole, and timely source of information concerning Japanese intentions and strategy.

The study chronicles how, by reorganizing and redirecting its resources, U.S. Navy communications analysts engineered a spectacular triumph over Japanese naval cryptography and how the reports produced by these analysts contributed to development of a new U.S. naval strategy in the Pacific. By intercepting, deciphering, and translating the Japanese Navy's messages that contained their order of battle, the timetables for their military operations at Port Moresby, the Aleutians, and Midway, and a myriad of vital details concerning their most secret plans and intentions, the communications analysts were vindicated of any taint of failure from Pearl Harbor.

Perhaps most importantly, this study provides an in-depth examination of what U.S. communications intelligence learned from Japanese Navy communications; how this information influenced U.S. Navy decision makers in Washington and Hawaii, who developed an American strategy to stop the advancing Japanese; how completely it frustrated Japanese strategy in the second phase of the war; and how it affected the outcome of two historic sea battles. In the words of Admiral Chester W. Nimitz, COMINT was entitled to a "major share of the credit for the victory at Midway."

The study also marks the appearance of radio intelligence detachments and linguists aboard ship. Although not the first time the idea of intercepting enemy naval communications from a floating platform had been attempted, the Battle of the Coral Sea marked the first time it had been tried by the U.S. Navy under actual wartime conditions. Evidence indicates that the contribution of this experiment to the conduct of the tactical war was important, even vital, and vindicated the wisdom of the earlier experiments.

Because it was new and secret, however, it may have depended to an unworkable degree upon the relationship between the individual detachment and the task force commander.

With the buildup of the Australia-New Zealand Forces (ANZAC) command in January and February 1942, the relocation of General Douglas MacArthur to Australia in mid-March 1942, and the creation of the Southwest Pacific Theater on 30 March 1942, other forms of intelligence information became available to U.S. policymakers, strategists, and tacticians. During the Battle of the Coral Sea, for example, communications intelligence and aerial photography formed an enviable partnership in support of the American task force commanders. Indisputably, however, at this stage of the Pacific war, no other source of either strategic or tactical intelligence could compare with radio intelligence. It truly gave Admiral Ernest J. King, Commander in Chief, U.S. Fleet (COMINCH) and Admiral Chester W. Nimitz, Commander in Chief, Pacific Fleet (CINCPAC), a "priceless advantage" over the Japanese.



Admiral Chester W. Nimitz

Part One: The Battle of the Coral Sea

JAPANESE STRATEGY

Japan started the war in Asia and in the Pacific to establish and protect a "New Order" in Asia.² In "Phase I" of the war, the "operational objective" of the Imperial Fleet, in the words of Combined Fleet Secret Order Number One, issued on 1 November 1941, was expressed as follows: "... by ejecting British and American strength from the Netherlands Indies and the Philippines, to establish a policy of autonomous self-sufficiency and economic independence."³ Willmott, in the same vein, asserts that

... of all the major combatants Japan alone did not aspire to a final victory Japan's goal was to secure a negotiated peace by limiting and winning the conflict she began . . . in 1941. She aimed to force her enemies to come to terms with the gains she intended to make in the opening months of the war.⁴

Asia was defined by those Japanese who shared this vision of the immediate future as including India and Indonesia, as well as China, Manchuria, and all of Southeast Asia, including the Philippines. Australia was on the periphery of Asia, in danger of being swept into its definition at the next favorable turn of events.

Phase I of the Japanese master plan for the conquest of this vast area actually ended in the central and western Pacific in March 1942, with the unexpectedly quick and easy defeat of Australian, British, Dutch, and American forces and the fall of Java. Heroic American naval, ground, and air forces on Corregidor did not capitulate until 6 May 1942. The fall of Java, however, marked the end of effective naval resistance in the entire region from Singapore to New Guinea.

Flush with their uninterrupted string of victories, Japanese army and navy planners agreed, probably in late December 1941 or early January 1942, that the United States and Great Britain must be prevented from developing Australia as a base from which to launch a counteroffensive. How this ambitious goal was to be accomplished became a matter of contention, however, and a controversy developed between the army and navy over the "propriety" of actually invading Australia and India. The navy reasoned that, to keep the U.S. and Great Britain on the defensive, all Japanese military arms should be constantly on the offensive. Accordingly, naval strategists recommended a far-reaching but vastly unpopular menu of joint army/navy amphibious offensives throughout the central and western Pacific and in the Indian Ocean to be accomplished in the first six months of 1942.⁵

The navy wanted the army to invade India and Australia. Always mindful of its heavy troop commitments in China, Manchuria, and Southeast Asia, and never an enthusiastic supporter of naval strategy, the army managed to convince the navy that the strategy was

beyond its capabilities. Instead, it agreed to a policy also conceived in the navy, but much more economical of army resources, to help the navy sever communications between the U.S. and Australia and the U.K. and India. If successful, such a policy would complete the isolation of Australia, prevent an Anglo-American counteroffensive in the Pacific, reduce western aid to China, and place India, Australia, and New Zealand well within the sphere of Japanese influence without resorting to a serious expenditure of army resources. Thus, the army and navy created out of this compromise the basic Japanese strategy of Phase II of the war in Asia and the Pacific: to isolate and neutralize Australia and India, rather than invade them.⁶ The Japanese Navy lost no time in implementing this policy.



The Coral Sea and Surrounding Area

On 23 January 1942, six days after their successful operation against the city of Rabaul on the island of New Britain, Japanese Imperial Headquarters published Naval Directive #47, which immediately became the basic architecture for their Phase II strategy. It ordered the army and navy to cooperate in seizing the ports of Lae and Salamaua on the northeast coast of Papua/New Guinea.⁷ After these operations had been completed, the navy alone was to seize Tulagi, an island near Guadalcanal in the Solomons. Following the occupation of Tulagi, the army and navy were again to cooperate in seizing Port Moresby, an Australian base on the southeast coast of Papua/New Guinea. After Moresby was secured, the Japanese planned to launch their campaigns against New Caledonia, Fiji, and Samoa, all of which lie east of Australia, thus effectively encircling the northern half of eastern Australia and cutting off communications with her U.S. allies.⁸

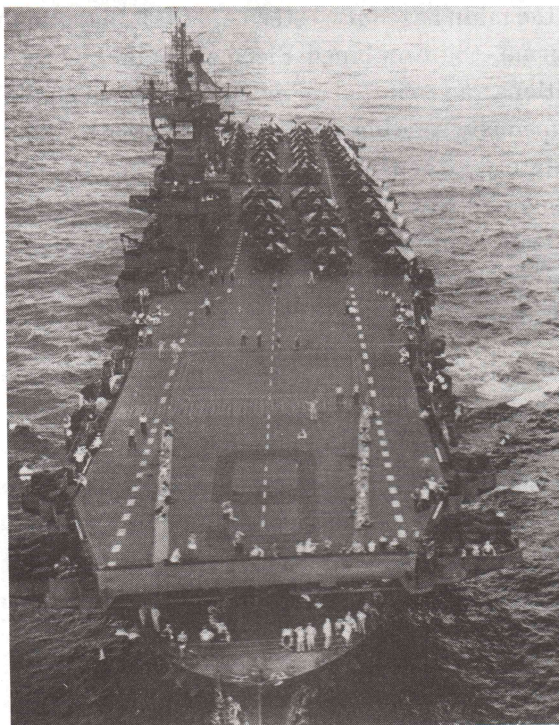
In mid-February a "local agreement" was reached by the army and navy to implement Directive #47 in early March beginning with the joint effort to seize Port Moresby.⁹ To effectively isolate India, the main base for western aid to China, and incidentally to protect the army's efforts in Burma, the Combined Fleet also planned unilaterally to continue strategic offensive operations and to inflict as much damage as possible on the British Far Eastern Fleet by simultaneously sending carrier strike forces to the Bay of Bengal and the Indian Ocean.¹⁰ Immediately after the Moresby operation, Directive #47 ordered the Fourth Fleet to seize Ocean and Nauru in the Gilberts. These lightly defended equatorial islands were part of the Trust Territory of the Pacific administered by the United States. Then the Combined Fleet would regroup at Rabaul and Truk to carry out joint operations against New Caledonia, Fiji, and Samoa.¹¹

In the euphoria of their victories, the Japanese disregarded the possibility that any power or weapon could derail their intentions. However, thanks to the aggressive U.S. strategy of using carrier task forces in hit-and-run raids, the road to Japanese success in Phase II was not to be as smooth and uninterrupted as in Phase I. Two episodes involving U.S. carrier aircraft convinced Admiral Shigeyoshi Inouye, Commander in Chief, Fourth Fleet (CINC 4), that control of the skies was not assured and that he needed carrier support to counter the unforeseen U.S. air capability if he were to succeed with his planned invasion of Port Moresby.¹²

AMERICAN COUNTERMEASURES

For the United States 1942 began with some extraordinary bad luck with respect to carrier strength. On 11 January 1942, less than two weeks after Admiral Chester W. Nimitz had assumed command of the Pacific Fleet, the carrier *Saratoga* was torpedoed by a Japanese submarine. Damage was so extensive that the vessel, only just arrived in the Pacific, was returned to the West Coast for repairs. This temporary loss reduced the U.S. Pacific Fleet to three fast one-carrier task forces (TFs): TF 8, *Enterprise*, commanded by Captain George D. Murray; TF 11/16, *Lexington*, commanded by Rear Admiral Aubrey W. Fitch; and TF 17, *Yorktown*, commanded by Vice Admiral Frank Jack Fletcher. TF 17 first escorted reinforcements to Samoa and became available for offensive operations only on 23 January 1942, the same day Rabaul fell to the Japanese.¹³

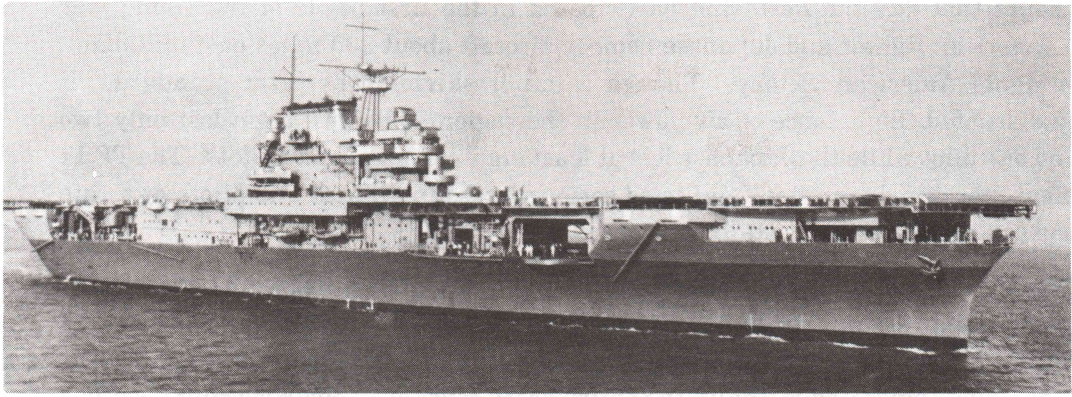
Regardless of the Pacific Fleet's reduced circumstances, however, Admiral Ernest J. King, Commander in Chief, U.S. Fleet (COMINCH), insisted on a more aggressive plan of attack during the early months of 1942.¹⁴ From the intelligence reports provided by the Pacific radio intelligence (RI) centers, he was confident of the success of the proposed hit-and-run ventures. He knew that the Japanese had weakened their defenses in the central Pacific by transfers of land-based aircraft from the Mandates to the southwest Pacific, and he knew in detail the whereabouts and often the destinations of each element of the Japanese Combined Fleet.



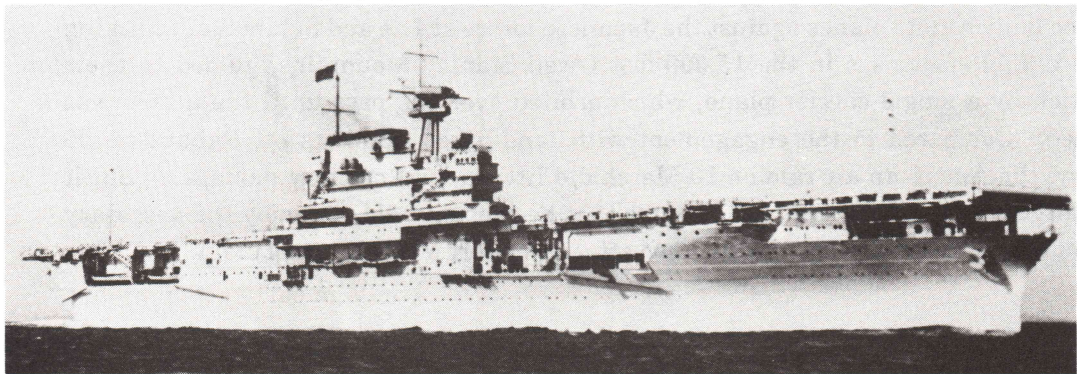
USS Enterprise

On 1 February 1942, Admiral Nimitz dispatched two one-carrier task forces, *Enterprise* (TF 8) and *Yorktown* (TF 17), to conduct raids on Japanese-held islands west of Hawaii. The *Enterprise* operated against the Marshalls, Wake, and Marcus Islands until joining the *Hornet*, commanded by Captain Marc A. Mitscher, out of San Francisco, for the raid on Tokyo in April. The *Yorktown* also attacked the Marshalls in early February but then saw little action until early March.¹⁵ During those early months of 1942, the U.S. Navy also accomplished a major feat in establishing and maintaining air superiority using carrier aircraft over a small but critical area in the northern Coral Sea.

In mid-February Admiral King temporarily transferred the *Lexington* to Admiral Herbert F. Leary, head of ANZAC naval forces with headquarters in Australia. Admiral Leary planned with Admiral Wilson Brown, commander of the task force, to send the *Lexington* immediately against the Japanese base at Rabaul. This plan was put into action, but on 20 February TF 11 was discovered before it could deliver its attack. For



USS Hornet



USS Yorktown

several hours that day the *Lexington* participated in the first battle of the young war between American fighter and Japanese bomber aircraft about 300 miles east of Rabaul. It was a signal American victory. Though a minor skirmish by later standards, it seriously disrupted the balance of air power in the region. The *Lexington* lost only two planes and one pilot while the Japanese lost at least eighteen planes and pilots. The TF 11 engagement, not decisive in itself, inflicted serious losses in aircraft and pilots at a rate that Japan could not possibly sustain.¹⁶

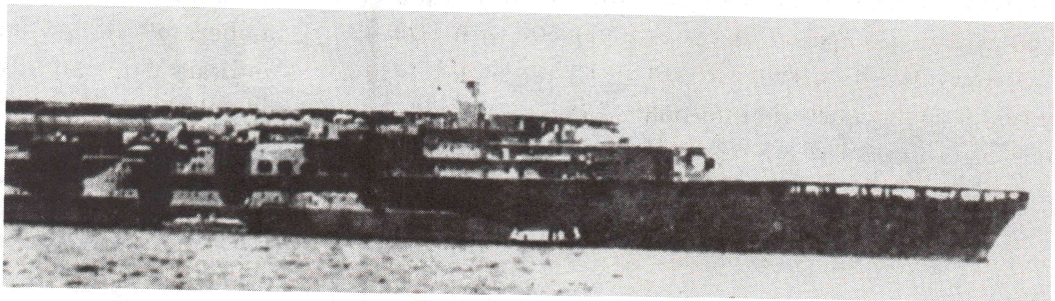
Despite the success of TF 11, it was clear that the U.S. and its allies were not seriously impeding the Japanese war machine in the southwest Pacific. By 9 March 1942, when MacArthur was completing arrangements to leave Corregidor, the Japanese controlled the Netherlands East Indies and virtually the entire north coast of Papua/New Guinea. On 8 March, Lae and Salamaua fell to the Japanese, and Rabaul-based aircraft were poised to strike at Port Moresby on the south coast of Papua and Finschafen on the north coast near Lae. These strong points were the last significant obstacles to complete Japanese domination of the world's second largest island. Unknown to the Japanese, however, another event involving a U.S. carrier task force was about to cause a major convulsion in their plans.

After the aborted raid on Rabaul, Admiral Leary returned the *Lexington* to CINCPAC control. On 10 March 1942, while the Japanese were savoring their victories at Lae and Salamaua and were preoccupied with seizing the nearby port of Finschafen, the *Lexington* and the *Yorktown*, now constituting a new TF 11, lay undetected off Port Moresby. The task force launched its planes against the Japanese forces at Lae and Salamaua, attacking through a 7,500-foot pass in the 15,000-foot Owen Stanley Mountains, guided to their destination by a single carrier plane, which orbited over the pass until the attack was completed. Compared to the engagement with land-based bombers off Rabaul on 20 February, the American air raid on 10 March did little actual military damage.¹⁷ But it once again demonstrated to Admiral Inouye that he probably did not enjoy the necessary control of the skies required for the planned attacks on Port Moresby and Tulagi.

JAPANESE PREPARATIONS FOR MORESBY

The original Japanese plan called for an amphibious assault on Moresby, Operation MO, in March 1942 to be supported only by land-based bombers from Rabaul and seaplanes from newly constructed bases, i.e., Lae, Salamaua and Finschafen. With the feasibility of this plan in jeopardy because of the presence of an effective U.S. carrier force, Admiral Inouye sought to postpone the invasion of Moresby. He turned to his superior, Admiral Isoroku Yamamoto, Commander in Chief, Combined Fleet, with a request for carrier support to ensure Japanese air superiority before proceeding with the invasion of Moresby.

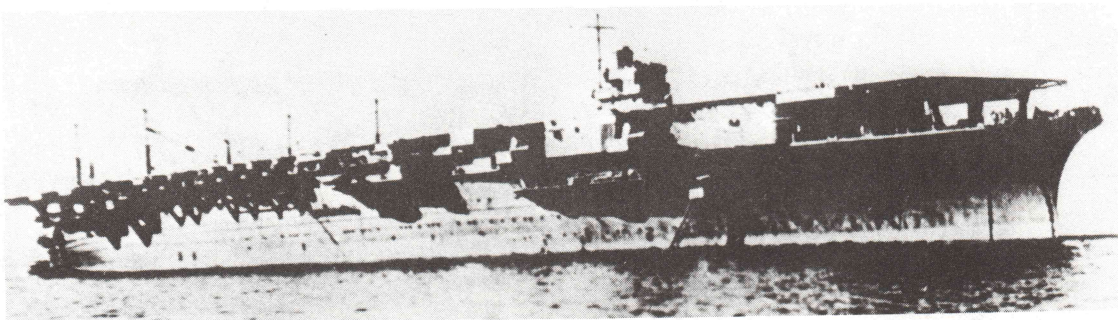
Admiral Yamamoto agreed with Admiral Inouye's assessment and allowed him to postpone Operation MO until May.¹⁸ Yamamoto also agreed to provide the carrier *Kaga* from Carrier Division (CarDiv) 1¹⁹ supplemented by a recently commissioned light carrier, the *Shoho*, which was not yet assigned to a division.²⁰ The *Kaga*, however, was reported torpedoed on 17 March in the Lombok Straits.²¹ This development led to the substitution of CarDiv 5's two carriers, *Shokaku* and *Zuikaku*, to the Fourth Fleet for the first two weeks of May.²² These changes seriously disrupted Yamamoto's original timetable for Phase II.



Japanese Aircraft Carrier *Kaga*



Aircraft Carrier Shokaku



Aircraft Carrier Zuikaku

Following the decision to postpone the invasion of Moresby, Tulagi, Ocean, and Nauru Islands until a carrier force became available, Admiral Inouye deployed his forces in areas that were relatively secure from the threat of American harassment. Using four heavy and two light cruisers to cover three destroyers, two gunboats and the light carrier *Chitose*, CINC 4 seized islands between 10 March and 19 April as far eastward as the Shortlands and constructed bases on the north coast of New Guinea, impressively completing a defensive perimeter from the Solomons to the Philippines.²³

On 23 April, Admiral Inouye issued South Seas Force Order #13 to resume operations against Port Moresby. Analysts at Hypo, the radio intelligence center at Pearl Harbor, speculated that this order was actually delivered by plane from CINC 4's Truk headquarters rather than by radio communications.²⁴ With the carriers and their escorts, the combined forces involved represented one of the largest collections of ships ever assembled by the Japanese Navy.²⁵ The Combined Fleet, meanwhile, increased its efforts to build up ground and air forces at Rabaul and in the Mandates in anticipation of the larger Phase II operations against Fiji, Samoa, and New Caledonia. The *Shoho* and numerous cargo vessels were used to ferry land-based fighter and bomber aircraft from Japan through the Mandates to Rabaul while the airfields on Timor, New Britain, and New Guinea continued to conduct air raids on Darwin, Moresby, and bases and towns in the Solomons. Many of these Japanese preparations for their numerous Phase II operations were reflected in their naval communications and were detected by U.S. Navy communications monitors located at the radio intelligence centers in the Pacific Basin.

NAVAL COMINT CENTERS AND THEIR REPORTS ON JAPANESE PREPARATIONS FOR THE INVASION OF PORT MORESBY, FIJI, SAMOA, AND NEW CALEDONIA

What time is it? According to current international standard time charts, the region between eastern Australia and Bougainville is in the Z+10 or K time zone. At the beginning of the war, however, all U.S. clocks were set on War Time (+1 hour). This explains why, in Hypo and Melbourne messages and in this narrative, all local times in this region are treated as Z+11. An occasional discrepancy of thirty minutes appears in the Yorktown intercept log because the ship sailed into and out of a + / - 30-minute time difference.

May is the third month of autumn in this region. According to Time Books World Weather Guide, which National Geographic consulted at my request, daylight in the Coral Sea at 10 degrees south on 15 May lasts 11 hours, 40 minutes, and at 20 degrees south, 11 hours 14 minutes. Adding a few minutes for false dawn and twilight and a few minutes for 7-8 days' difference in date when the days would be longer, and allowing for the fact that all the action directly involving Admiral Fletcher took place at approximately 15 degrees south, the hours of visibility on 7 and 8 May 1942 were probably 0700 to 1900 local time.

By the middle of March 1942, two viable naval radio intelligence centers existed in the Pacific: one in Melbourne, Australia, and one, Hypo, in Pearl Harbor, Hawaii. In response

to the deteriorating situation on Corregidor, a possible threat against Hawaii, and the demand for information from everyone in official Washington, another center (Negat) was formed in Washington in February 1942 by the Communications Directorate using elements of OP-20-G. The center on Corregidor (Cast) was no longer affiliated with a fleet command, and its collection and processing capabilities were rapidly disintegrating as a result of evacuations of personnel to Australia and destruction of its facilities by bombing and gunfire. Prior to March, however, its contributions to the rapid advances being made in naval cryptanalysis by the United States Navy were substantial. This was possible because, almost immediately after the war began, all the centers were linked by much improved communications, which made possible the rapid exchange of cryptographic information.

OP-20-G		Cdr. John R. Redman
GA		Cdr. Joseph N. Wenger
GB	Correspondence	Howes
GC	Communications	White
GD	Deception	Smith
GF	DF Net-East Coast	LCdr. Scott
GI	Combat Intelligence	Sam Bertolet
GL	Collateral Information	LCdr. A.W. Kramer
GM	Math Analysis Research	Cdr. H.T. Engstrom
GP	Planning and Equipment	Stanier
GR	Training and Personnel	Hayes
GS	Machine Processing	LCdr. H.O. Hogan
GT	Traffic Analysis	Lt. R.I. F. Fravel
GW	Traffic Receiving	LCdr. W.F. Harrington
GX	DF and Intercept Control	LCdr. Welker
GY	Cryptanalysis and Decryption	LCdr. Parke
GZ	Translation and Code Recovery	Kramer *
* Same Person		

OP-20-G Washington (Negat) Organization, February-June 1942

For some time, OP-20-G had used air mail for the transport of vital cryptographic material. In early January 1942, OP-20-G initiated a desperate attempt to speed up delivery of current cryptographic recoveries to each center. Washington authorized each center to send code and additive recoveries in radio messages on a special "COPEK" channel that linked Cast to Hypo and Washington and that by the end of March included Melbourne. The organization continued to use surface mail for the basic traffic.²⁶ Pearl Harbor and Melbourne shared the same Japanese Navy targets while Cast, for the remainder of its existence, reverted to priority support for the local commanders. Melbourne from the outset, however, was a joint Australian/U.S. Navy effort supporting an international and unified command. Admiral Hart mandated this relationship when the navy hastily moved Station Cast from the Philippines to Melbourne, Australia.

The Station Cast contingent in Melbourne quickly evolved into the dominant partner. This was partly because of the central role played by the American forces in the southwest Pacific as well as the unique radio intelligence capability represented by the Cast evacuees. Lieutenant Rudolph Fabian, the officer in charge (OIC), who had led the first party "deployed" from Corregidor, immediately established a collection and processing effort in Australia. Using almost exclusively his own resources, Fabian began to produce information concerning the Japanese fleet and its activities with particular emphasis on those elements of the Japanese fleet that threatened Allied naval forces in the southwest Pacific.

He also provided daily briefings for Admiral Herbert F. Leary and other senior U.S. Navy officials in the ANZAC forces. MacArthur's headquarters soon discovered his presence in Melbourne, and Admiral Leary ordered Fabian to include the Supreme Commander, Southwest Pacific Area (COMSOWESPACFOR). Despite its obvious strategic and tactical value, there is strong evidence, to be introduced later, that MacArthur, who was briefed in private, seldom used Fabian's information during this period to support the naval task forces under his command. (Moreover, the evidence that follows suggests that, when it was used, it was likely to be misused.) This pattern of daily briefings continued until MacArthur's headquarters moved to Brisbane in the fall of 1942.²⁷ Because of the disappearance of the organizational element known as the 16th Naval District and the substitution of ANZAC headquarters in its place, the situation in Hawaii regarding command relationships and command intelligence interests was completely different.

GO	Diplomatic and Naval Attaché Systems
GX	Traffic Intelligence Division (3 officers, 4CRM)
	Japanese Weather Codes
	DF Plotting Center
	Traffic Analysis
GZ	Research and Exploitation of Codes (8 officers, 3 men from Band)
GY-1	Code and Cipher Identification and Key Recovery (JN 25)
GY-2	Cryptanalysis of JN 11
GY-3	Cryptanalysis of JN 33, 40, 41, 42, 108, 155, 166, 180, 182, 183, and 199
GY-5	Translations of all messages and routing of CI summaries, originator of crypto-status reports

COM 14 (Hypo) RI Unit, January-June 1942

In Hawaii, the radio intelligence center known as Hypo was administratively subordinate to the 14th Naval District, just as Station Cast in the Philippines before the war had been subordinate to the 16th Naval District. Hypo was commanded by Commander Joseph J. Rochefort, who was both a Japanese linguist and a cryptanalyst trained in OP-20-G by Laurance Safford and Agnes Driscoll. Highly regarded by Safford, Rochefort at one point was the head of OP-20-G while Safford satisfied his obligatory period of sea duty. Rochefort and Commander Edwin T. Layton, the intelligence officer for the Pacific Fleet, who was also a Safford-trained cryptanalyst, enjoyed an exceptional working relationship and a strong friendship. It had begun years before when they were both language students in Japan. Their offices were connected by a special telephone over which they conversed, often several times each day.



Rear Admiral Edwin T. Layton



Lieutenant Joseph John Rochefort

Lacking such a close working relationship with anyone in the 14th Naval District, which had no intelligence requirements to which it could conceivably respond, it was natural for Rochefort to consider CINCPAC as his command rather than the District. Slipping into this error was probably easy for Rochefort because virtually all of Hypo's resources were devoted directly or indirectly to satisfying intelligence requirements that originated with CINCPAC. Moreover, Bloch, who had preceded Kimmel as CINCPAC, never required an accounting from Rochefort.

1918-1925	Fleet/School
1925-1929	OP-20-G
1929-1932	Japanese Language Training
1932-1933	ONI
1933-1936	Fleet (USS <i>Maryland</i>)
1936-1938	11th Naval District (ONI)
1938-1939	Fleet (USS <i>New Orleans</i>)
1939-1941	Fleet (USS <i>Indianapolis</i> /Staff)
	Scouting Force (US Pacific Fleet)
1941-1942	OIC Com 14 RI Unit

J.J. Rochefort Tours of Duty, 1918-1942

Before 7 December 1941, intelligence requirements that controlled the collection, processing and reporting activities of the Hawaiian RI center were not stated in a formal manner by the Commander in Chief, Pacific Fleet. Hypo followed a simple collection and processing logic to the complete satisfaction of Layton and Admiral Kimmel. Its goal was to detect and report threats to the Pacific Fleet by monitoring the communications of the Japanese fleet. It gave priority to recovering communications of the Japanese Navy shore establishment, of major Japanese fleet units, especially battleships, cruisers, and carriers, and of those related to local developments, particularly those involving submarines. From the surviving daily summaries from Com 14 and the CINCPAC Intelligence Staff, it is clear that they were also concerned with ground-based air units, particularly those deployed outside Japan. This latter concern did not arise entirely from the threat to U.S. possessions posed by the locations of the air units. The deployments of air units were also viewed as harbingers of offensive operations.

Between July and December 1941, Hypo traffic analysts Lieutenant Thomas A. Huggins and Lieutenant John A. Williams, no doubt encouraged by Rochefort and Layton, had freely expressed their opinions and time after time, through Rochefort, issued warnings of Japanese intentions. It was commonplace for them to assign a possible meaning or perspective to the patterns of fleet communications that might indicate concentrations of various elements, particularly if they threatened an important place or simply suggested hostile Japanese fleet intentions in general. The insights Rochefort and his analysts provided were usually forwarded to Admiral Kimmel unchanged by Commander Layton.²⁸

Following the Japanese attacks on Pearl Harbor and the Philippines, however, Hypo reporting lapsed briefly into an eclipse that lasted until late January 1942. In sharp contrast to the incisive analytical reports that seldom left a Japanese initiative unaccounted for, probing beneath ship movements and patterns of communications

activity, Hypo reports for weeks after 7 December 1941 were usually empty of any insight or interpretive comments. The daily reports continued to reflect comprehensive coverage of communications activity and fleet movements, but the bare facts were offered without any commentary whatever, leaving the reader to decide what it all meant. They also lacked something that had formerly been a hallmark of Hypo's analytic capability: a willingness to publish warnings whenever appropriate. One noteworthy example of this deficiency occurred in February 1942. Between 17 and 19 February, Hypo followed CarDivs 1 and 2, of the Pearl Harbor Strike Force, in the Netherlands East Indies, reporting their whereabouts each day. Layton's daily reports, perhaps lacking the insight formerly provided by the Hypo analysts, suggested that they represented a threat to Java and Timor. Sadly, this was not the complete story. On 19 February, without warning, planes from these carriers struck Darwin, Australia, in a devastating attack.²⁹

Several reasons for the remarkable change in Hypo's approach to reporting on the activities of the Japanese Navy after 7 December 1941 are suggested by the recollections of two of the principal figures in Headquarters CINCPAC and Hypo at this time: Admiral Edwin T. Layton, intelligence officer to both Kimmel and Nimitz, and Captain Thomas Dyer, cryptanalyst and Rochefort's second in command at Hypo. Layton suggested that an explanation lay in the new intelligence requirements mandated by Admiral Nimitz soon after he became Commander in Chief, Pacific Fleet, on 1 January 1942. Almost immediately after Nimitz replaced Admiral William Pye (Pye relieved Kimmel on 17 December 1941), two circumstances combined to require a major change in intelligence priorities. One was the loss of Wake; the other was pressure from Admiral Ernest J. King, newly appointed Commander in Chief of the U.S. Navy.

Admiral King believed he understood the intent behind the Japanese Navy's activities. Instead of continuing Admiral Pye's conservative defensive policies, King wanted the Pacific Fleet to conduct aggressive carrier raids on Japanese bases in the Gilberts and the Marshalls to check the Japanese advance and, most importantly, to reduce the growing threat to Samoa, Fiji, and the U.S.-Australian supply routes. His orders left no room for Nimitz to pursue the cautious policies of his predecessor.³⁰ King's attitude may well have influenced Nimitz to structure new and much more formal intelligence requirements than the informal understanding that prevailed before his arrival.³¹

Much more formal and specific than in the past, the new requirements called for information concerning "deployment of enemy carrier strike forces/other carriers; disposition and strength of the Fourth and Sixth Fleets; deployments and strength of the twenty-four shore-based air forces, particularly the 24th Air Squadron known to be in the Marshalls; and enemy forces capable of furnishing significant reinforcements to the Marshalls/Gilberts by late January 1942."³² Marked by the detachment of a commander who was unfamiliar with Hypo's capacity for analysis, the new requirements seemed to

call simply for data on Japanese Navy capabilities – not warning, not insight into Japanese intentions, not even analysis. The new approach represented an immense departure from the past and indicated that the symbiotic relationship between Hypo and the CINCPAC intelligence staff had ended. It would be almost reassuring to end the explanation here, but Captain Dyer offered another possible explanation for Hypo's temporary metamorphosis.

Captain Dyer suggested that the unfortunate change in Hypo's approach to reporting on the activities of the Japanese Navy was caused by something far less tangible: Hypo suffered from a sense of guilt over what the world labeled as a spectacular failure of both intelligence and leadership.³³ According to Dyer, all at Hypo who were associated with the catastrophe of 7 December 1941 vowed that such a surprise would never happen again. Apparently they decided to let the facts speak for themselves.

Though unlikely to represent a major cause for the temporary diminution of Hypo's genius, it was in fact literally weeks before the analytic talent at Hypo, whose output had shone so brightly in October and November 1941, once again reclaimed its role as a valued source of strategic intelligence to new commanders in the Pacific and Washington. Fortunately, the wake-up call for Rochefort and Layton to resume functioning as a team came stuttering to life in late January 1942, just as the Japanese Navy launched its Phase II offensive against Port Moresby.

OP-20-G WASHINGTON/NEGAT

Prior to 7 December 1941, OP-20-G's "intelligence" support to the Chief of Naval Operations, Admiral Harold R. Stark, was very limited. It consisted of support to the Atlantic direction finding (DF) net and the decryption and translation of Japanese diplomatic messages. By taking resources from OP-20-GY, the cryptanalysis organization, OP-20-G initiated a daily summary of information about the Japanese Navy on 14 December 1941. It was intended to satisfy the insatiable demand in Washington for current intelligence. It was an unsatisfactory solution to the task at hand because it contained second-hand information taken from the daily summaries from Hypo and Cast.³⁴

In February 1942 OP-20-G completely reorganized, and its mission as a purely research facility abruptly changed. In the new structure, an analytic element called "Combat Intelligence" was created and designated OP-20-GI.³⁵ This element produced little original current intelligence until March, when intercept was obtained from Cheltenham, Maryland, and current decrypts/translations on JN 25 (the Japanese Navy General-Purpose Code) messages began to flow from OP-20-GY and GZ, respectively. Tasked to disseminate the translations to the commands and field elements along with its own analytic reports, OP-20-GI became in effect a nominal COMINT center in Washington. Until 15 May, however, it continued mainly to publish translations and sporadic reports

based on the output of Hawaii, Corregidor, and Melbourne. On that date the Communications Directorate authorized OP-20-GI to issue RI/CI summaries twice each day at 0600 and 1400, including traffic analysis (CI) reports prepared by the analysts in OP-20-GT.³⁶ This development was important in following Japanese preparations for the assault on Midway. Except for its substantial cryptanalytic contributions between December 1941 and May 1942, however, Negat was not a functioning COMINT center on the order of Hawaii, Melbourne, and Corregidor when the Japanese began to implement their Phase II policies. Significant functions such as traffic analysis and the production of reports based on the work of resident analysts were not developed in Washington until after the Battle of the Coral Sea.

COMMUNICATIONS INTELLIGENCE AND JAPANESE INTENTIONS TOWARD PORT MORESBY

On 29 January 1942, the same day that Japanese Imperial Headquarters ordered Admiral Inouye to seize Port Moresby in early March, messages containing upper air observations for the region to the south began to emanate from Rabaul. In February Japanese land-based aircraft from Rabaul initiated bombing attacks on the port, the town, and the nearby airfield. As each of these activities was detected by COMINT, U.S. Navy communications intelligence centers in Hawaii, Corregidor, and Melbourne seized the opportunity to issue warnings to King, Nimitz, and Hart. After the formation of ANZAC, Admiral Leary also received warnings of Japanese "future operations" in the direction of "Lae, Port Moresby, and the Solomons."³⁷ Collectively, the warnings led Layton (and Admiral Nimitz) to agree in late February that a Japanese offensive was planned for the Moresby area.³⁸ Within a week the task forces were also alerted.

Initially excluded by the principle of need-to-know from distribution of communications intelligence, even that published by Layton, the carrier task force (CTF) commanders were added as soon as their forays began to produce a Japanese reaction. Individual intelligence items based on COMINT were supplied through CINCPAC to his subordinates in a variety of intelligence media. From 1 to 16 March 1942, for example, a daily CINCPAC Combat Intelligence Bulletin³⁹ based on COMINT supplied mainly from Hawaii, but with occasional contributions from Corregidor, was sent as a message to all CTFs. It was replaced on 17 March by the CINCPAC Intelligence Bulletin⁴⁰ that was also based on COMINT with contributions from Melbourne and that, according to surviving records, was sent to the same distribution until 1 June, when it too ended temporarily.

After the middle of March, all CINCPAC Bulletins that contained intelligence concerning the Japanese fleet were based principally on the following sources: individual messages translated by the centers and sent to CINCPAC; COMINT reports usually but not necessarily based on translations that originated each day within Hypo;⁴¹ the Com 14 Radio Digest that was usually sent onward by CINCPAC almost verbatim;⁴² and the Com 14 COMINT Summary.⁴³ After 20 March, when Melbourne began its daily reports, Hypo and CINCPAC cited the results of Melbourne's analysis whenever they appeared in their daily products.

As an almost inflexible rule, the COMINT centers were not in direct contact with the task force commanders. Exceptions occurred only twice, both during the Battle of the Coral Sea. The two surviving messages summarized unique communications activity of the Japanese strike forces. Though not vital information – the second message pertained to activity that had occurred over nine hours before – these were the only two messages sent by Com 14 to the task force commander during the battle.⁴⁴ Even during a tactical crisis, Com 14's reports were sent only to CINCPAC and other COMB and COPEK addressees, i.e., COMINCH, COMSOWESPAC, and the other centers, via priority messages.

The surviving CINCPAC message file for the period between March and the end of May 1942 suggests that MacArthur did not rely on COMINT. It also reveals that he too did not permit Fabian to communicate directly with the task force commanders. The messages sent to the task force commanders and to CINCPAC indicate that MacArthur's preference was clearly slanted toward visual reconnaissance, including both aerial and coast watcher sources; he seldom passed on to the CTFs any COMINT learned from Fabian. The same record also reveals that, after the Battle of the Coral Sea, COMINT almost never appeared in the messages from MacArthur's headquarters.⁴⁵

MacArthur's apparent reluctance to use communications intelligence may be due in part to an extraordinary situation that developed within the first Corregidor contingent soon after Fabian arrived in Australia. For the first ten days between 20 and 30 March 1942, the OIC of the Melbourne center was not Fabian but Lieutenant Commander Redfield Mason, a Japanese linguist normally employed by the Office of Naval Intelligence (ONI) and formerly on the intelligence staff of the U.S. Asiatic Fleet. He probably occupied that position in the Melbourne center because of his rank, which was senior to Fabian's, and Leary's mistaken notion of Mason's role in the detachment when he arrived in Australia via Java with the first party to be evacuated from Corregidor. At the end of the first report prepared by Fabian and his men, Mason appended the following comment, which revealed his distrust of any COMINT report not based on a translation:

It should always be borne in mind that RI is subject to the errors induced by enemy deception at which they are quite adept, and to those resulting from the analyzers' misinterpretations of honest traffic. Hence RI, unconfirmed by CI or DF bearings, may give an entirely misleading picture.

This note was addressed "Memorandum for COMANZACFOR," Admiral Leary, but because of the confusion over subordination that briefly prevailed immediately after 17 March 1942, when General MacArthur arrived in Australia, the note was probably intended for MacArthur as well.

To mitigate the profoundly negative effects such a comment would undoubtedly have on any headquarters receiving subsequent COMINT reports not based on translations, as well as on his own work force, Fabian appended a second note placing a more reassuring perspective on his men and their work:

Note #2: The information-gaining capabilities of the unit are somewhat restricted at present but, while we are bringing our records up to date, developing microfilm books, completing arrangements for moving, collaboration, etc., we are scanning what traffic is available to us with particular stress on that addressed to or originated by units suspected of being in the Bismarck Archipelago area and also watching for those units on the DF bearings.⁴⁶

By this statement Fabian, who was himself a cryptanalyst,⁴⁷ cleverly defended an American process of communications analysis probably keenly aware that for over twenty years his British counterparts had considered traffic analysis a "most valuable adjunct to" and a "trustworthy substitute" for cryptography.⁴⁸ Soon after these notes appeared, Lieutenant Fabian replaced Mason as OIC, and Mason departed for Washington, where he became head of OP-20-GZ (Translations), a job usually held by a linguist appointed by ONI.⁴⁹

It was a curious coincidence that this episode occurred just as the floodgates were about to open allowing a torrent of Japanese Navy messages to be translated by U.S. Navy linguists at the Pacific centers. A major intelligence breakthrough for the United States occurred early in February 1942, when U.S. Navy cryptanalysts discovered that the change in the cipher for the Japanese Naval General-Purpose Code (JN 25) that occurred on 4 December 1941, i.e., the introduction of cipher Baker 8, was in fact only a slight modification in the keying method employed in the Baker 7 cipher. To the consternation of the cryptanalysts at the time, however, the change from Baker 7 to Baker 8 frustrated a promising series of analytic successes against the cipher.⁵⁰ Successful penetration of the new cipher in February 1942 meant that all the work done since before Pearl Harbor on code recoveries and on the Baker 8 cipher could be applied to the JN 25 messages intercepted until the cipher changed again. Capitalizing on the breakthrough by increasing the numbers of key personnel working on the Baker 8 cipher and JN 25 code recoveries, the U.S. Navy, within a month, gained the ability to read all intercepted messages sent in this enciphered code.

The increasing numbers of navy personnel assigned to the Pacific war effort in Washington and to the analytic centers in the Pacific slowly revealed to the commanders of defending U.S. forces the Japanese Navy plans for offensive action from the Aleutians to Moresby.⁵¹ Almost everything written in radio intelligence reports based on message traffic from mid-March to the end of May 1942 came from the one system, JN 25. By mid-April, Japanese messages were being intercepted, decrypted, translated, reenciphered and disseminated by Hypo within six hours of their original transmission!⁵² These reports would prove to be the most vital of the entire war.⁵³

With the advent of readable messages, traffic analysts as well as cryptanalysts tapped a veritable cornucopia of Japanese Navy activities on which to report. Exuberantly, all of the centers routinely shared the full and often partially recovered text of JN 25 messages

with the commands they supported. The practice of providing partial message texts lasted well into the fall of 1942.⁵⁴ Although there is no indication that erroneous decisions were made based on partial message texts, this practice often left the task of extracting meaning from a partial translation to the commander's intelligence staff.⁵⁵ Notwithstanding this minor shortcoming, as will be seen in the following review of specific COMINT contributions to the decision-making processes of the headquarters served, all of the centers as well as the CINCPAC intelligence staff⁵⁶ were prolific in producing COMINT reports that bore specifically on events occurring in the area between Japan and Australia during the period 15 March–May 1942.

COMINT reports identified Rabaul with its concentrations of land-based bombers, Truk from which CINC 4 guided his surface raiders and submarines before moving to Rabaul, and the flagship of Admiral Yamamoto, CINC Combined Fleet, as the principal sources of much of the Japanese mischief in the South Pacific. The centers also recorded a buildup of air, subsurface, and surface forces in the Fourth Fleet, while the attacks by bombers from Japanese bases in the Bismarcks and Solomons on northern and eastern Australian coastal towns and Port Moresby continued with their attendant losses in Japanese aircraft and crews.

The air buildup in the Mandates and in the Rabaul area reached the point in April 1942 that Layton, affirming the view expressed in January by Admiral King, characterized it as a threat to U.S. supply lines to Australia. Adding possible substance to Layton's warning, Hypo on the same day reported without comment that the Japanese navy minister, in one twenty-four-hour period, addressed no less than eleven dispatches to Combined Air Force units in the Fourth Fleet area.⁵⁷ Although Hypo drew no conclusions of warlike intentions from the navy minister's activity, the center in Washington (Negat) saw part of the air buildup as indicating a likely Japanese offensive emanating from Rabaul and published a warning report to this effect.⁵⁸

In addition to the continuing weather reporting and bombing attacks in January and February, other revealing features to Japanese communications pointed unmistakably toward Japanese fleet objectives. Perhaps the most prominent features were the digraph/trigraph designator systems used throughout the Japanese fleet. The designators represented specific places throughout the Pacific and were often adapted to convey organizational information. The initial digraph/trigraph designators observed by navy COMINT analysts, though complex, were solved almost immediately. Digraphs beginning with *A* applied to American targets in the central and northern Pacific.⁵⁹ Australian targets in the Papua/Solomons region were assigned designators beginning with *R*, and those beginning with *D* were British/Australian targets in the Indian Ocean (including Darwin – DP). From its initial discovery, COMINT analysts used this system as a basis for identifying Japanese Navy objectives.

On 23 March 1942, for example, less than two weeks after the Pacific centers published their first translations, Corregidor published a report containing recoveries for eighty-nine designators, including AF for Midway and RZQ for Port Moresby.⁶⁰ In early April the designator RZP appeared in a variety of contexts, which added to a growing

conviction that it too represented Moresby. A common topic of the RZP messages concerned participation of the *Kaga*⁶¹ in the "RZP Campaign."⁶² Neither Com 14 nor Corregidor, which also noted the RZP/*Kaga* connection, hesitated to correlate RZP with Port Moresby.

The Japanese designator system also provided additional evidence that further Japanese planning for the Moresby campaign was not postponed by changing the initial planned invasion date. While the Fourth Fleet consolidated its hold on northern New Guinea and two weeks before CINC 4 issued South Seas Force Order #13, a message was intercepted and translated that revealed the order of battle (OB) for a Moresby task force that included carriers.⁶³ Following publication of this message, Layton issued a warning that "a Japanese offensive into the Solomons, Ellice or Gilbert Islands" seemed likely.⁶⁴ Ironically, the warnings were not accepted in the southwest Pacific.

From its arrival in Australia on 17 March 1942, MacArthur's headquarters regularly received all messages in the COMB and COPEK address groups, insuring that MacArthur and his staff received all warnings from Hawaii, Melbourne, Corregidor, and Washington. On the scene for only a month, MacArthur's intelligence staff did not believe the navy's reports about Japanese intentions against Moresby. In sharp contrast to the confidence COMINT inspired in U.S. Navy circles, particularly in Nimitz and Layton, the views of MacArthur and his staff reflected a curiously skeptical attitude.

On 21 April, Colonel Charles A. Willoughby, MacArthur's assistant chief of staff for intelligence, prepared a status report for the chief of staff, Lieutenant General R.K. Sutherland, based on but not attributed to COMINT from Melbourne.⁶⁵ Willoughby's report questioned the prevailing navy wisdom regarding the meaning of the reported buildup in Japanese naval and ground-based air strength in the Fourth Fleet area. He declared that a buildup of Japanese sea power posed more of a threat to the coast of Australia and to New Caledonia than to Port Moresby.⁶⁶ His view revealed not only selective reading of the daily reports from Melbourne and Hawaii but an alarming lack of appreciation for the complexities of air, naval, and amphibious warfare. Willoughby also claimed that Moresby was more vulnerable to attack by nearby land-based air units and that *a successful attack would not require the carrier task force destined for the Fourth Fleet*. (His lack of knowledge of amphibious warfare is understandable since few military planners in the U.S. had any experience in amphibious warfare at this stage of the war. Though amphibious warfare has extremely ancient origins, it seems that each generation has been forced to learn of it the hard way, through experience.)

MacArthur and Sutherland did not completely disregard the warnings from Fabian in Melbourne, but they were probably secure in the knowledge that their virtually unmolested air patrols into the Coral Sea would soon confirm the presence, or absence, of a Japanese amphibious force. Searching beyond Tulagi, the easternmost point attainable, however, was another matter.⁶⁷ On both 25 and 27 April, General MacArthur warned the army commander on New Caledonia, who was far beyond the range of his aerial

reconnaissance patrols, of a likely Japanese attack. Unfortunately, one and possibly both of the messages came to the attention of a newspaper correspondent. The controversy generated by these disclosures did little to reduce Allied anxiety over possible Japanese suspicions that U.S. analysts were reading their most secret communications.⁶⁸

On 30 April, MacArthur received a message from General George C. Marshall, Chief of Staff, U.S. Army, concerning a story about Japanese intentions that had appeared in the Washington papers under the dateline "Allied HQ Aust 27 Apr." The story revealed a "naval concentration . . . in [the] Marshalls, apparently preparing for [a] new opn [operation]." It was a very concerned General Marshall who pointed out that if the Japanese became aware of this story they would be "justified in believing their codes broken - which would be disastrous [*sic*]." MacArthur denied any knowledge of a release containing such information.⁶⁹ Nevertheless, this incident may have contributed to MacArthur's negative attitude toward the use of COMINT in messages to subordinate commanders.

Neither the Japanese nor apparently the Pacific centers ever became aware of the episode. Certainly nothing arising in the southwest Pacific interfered with the center's requirements to provide details of Japanese plans to attack Port Moresby. Several vital pieces of information, however, continued to elude the navy's analysts: when did the Japanese plan to attack; what forces were committed; and how many objectives were represented in the organization revealed in translations of 9 and 22 April 1942?

The designators employed - MO, RZ, RX, RY - implied an operational concept transcending merely MO/RZ, the acknowledged designators for Moresby. Rochefort's people worked tirelessly to find specific correlations and ease the level of anxiety in CINCPAC headquarters. Layton was particularly alarmed by the unknown elements of the Japanese plan and speculated that the impending offensive could lead to a serious interruption in the flow of supplies to Australia and even to an attack on Australia itself.⁷⁰ This conclusion was stimulated in part by Hypo reports of the 22d and 23d, which for the first time detailed the strength of the Moresby operation.

Hypo's reports were based on translations by Hypo and Negat of Japanese Navy messages intercepted between 19 and 22 April and on a report from Melbourne. Hypo's reports revealed that the MO Strike Force included Cruiser Division (CruDiv) 5, CarDiv 5, and possibly submarines, and the light carrier *Ryukaku* [*].⁷¹ An equally alarming report on the 23d referred to the "powerful concentration" in the Truk area and erroneously included the carrier *Kaga*.⁷²

By 30 April 1942, after Admirals King and Nimitz had completed their first meeting in San Francisco, none of the most vital issues was resolved, although the scope of the Japanese plan was now known. Translations and analytic effort identified RXB as Tulagi and RY as an island in the Gilberts far to the east of Moresby. In addition, the names of Deboyne, Samari, and Cape Rodney "Detachments" appeared in translations of Fourth Fleet messages, suggesting that these locations in the Solomons Sea off the southern tip of Papua/New Guinea were included in the MO operation. A growing sense of urgency in Hawaii prompted Layton to publish a warning on the 30th that the Moresby operation "will begin very soon."⁷³

In a surprise move on 30 April, the Japanese fleet undertook to change their locator system. Their attempts to conceal the new system failed completely, however, when Hawaii intercepted a Fourth Fleet message containing both old and new designators. Hawaii translated a CINC 4 message to the Fourth Fleet, CruDiv 5, 11th Air Fleet, 4AAF, 5AAF, CarDiv 5, *Kamikawa Maru*, *Ryukaku* [*], a destroyer division (DesDiv), an air tender, an air force at Rabaul, and others, indicating the "enemy" had discovered some or all of the reference point designators. Detailed changes in the system were mandated using the "Irohani Syllabari." The translation conveniently substituted digraphs for trigraphs throughout the operational area.⁷⁴

This development, which analysts saw as the final step before the beginning of Japanese operational activity, prompted Hypo to publish an evaluation of the status of Japanese preparations. Their assessment of the forces gathered by the Japanese for their attack on Port Moresby was remarkably accurate. The MO, or Moresby, campaign was now under way. It encompassed southeast New Guinea and the Louisiades Archipelago. Australia was not an objective either at that time or in the follow-on operations to the east, preparations for which could not be clearly seen. The Aleutians were suggested, however, as a possible objective. The Japanese forces engaged in the campaign were listed: CarDiv 5 and CruDiv 5, less the *Nachi* (CA), with CruDiv 18 and Destroyer Squadron (DesRon) 6 available. Also included were Gunboat Division 8 and New Britain Air (5AAF) consisting of Tainan Air, 4th Air Corps, and Yokohama Air. The Commander, CruDiv 5, Vice Admiral T. Takagi, was in command of the Strike Force, and CINC 4, Admiral Inouye, was in overall command. At the time both were located in the Rabaul area. Light forces were said to be en route to the operations area. An unspecified number of air tenders and transports, one Submarine Squadron (SubRon) and the light carrier *Ryukaku* [*] were also included.⁷⁵ Melbourne analysts disagreed with some portions of the Hypo translation, but both centers agreed on the fundamental point, that the MO operation was under way.⁷⁶ (The MO-related forces consisted of almost 300 vessels of all types, including the following: three CVs, nine CAs, fourteen DDs, eight SSs, and *thirty-three warships of other types*. Lundstrom says that the total number was 282.) CINCPAC's estimate published in his OP Order listed a force considerably larger and significantly different from that published by Hypo but still far short of the actual strength. The discrepancy between Layton and

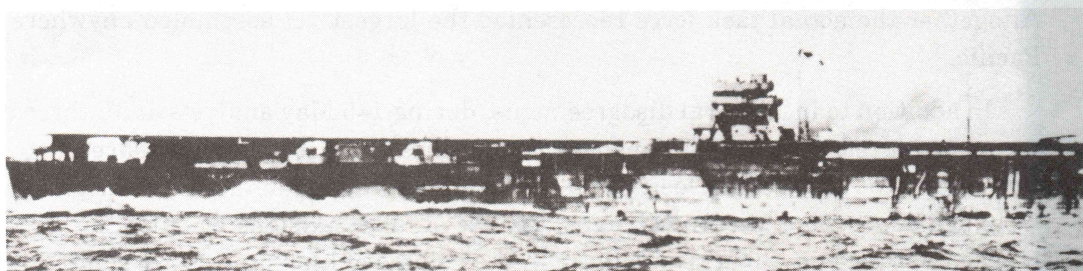
Rocheft probably indicated the inclusion of units Rocheft could not confirm. Though specific types of vessels were listed, CINCPAC did not attempt to correlate them with an Order of Battle: one BB from Battleship Division (BatDiv) 3, three CAs, three aircraft ferries, and parts of four CruDivs (4, 5, 6, and 18), sixteen DDs, and twelve SSs.⁷⁷ Altogether the actual task force represented the largest yet assembled anywhere in the Pacific.⁷⁸

In addition to intramural disagreements, during 1-5 May analysts at all three centers were victimized by massive Japanese communications security measures introduced throughout the Combined Fleet. In the Fourth Fleet the use of tactical callsigns by ships, a change of all shore station callsigns, the use of false callsigns by ships in the Moresby invasion forces, and a marked increase in the volume of high precedence communications complicated temporarily the task of identifying the fleet's communications infrastructure.⁷⁹ Hypo was probably not alone among the centers in admitting to "some confusion" caused by the communications deception plans introduced on 4 May into those elements of the Combined Fleet already preparing for their Midway operation. The most deceptive part of the plan was implemented by the Fifth Fleet on 3 May to cover the drawdowns on forces in home waters necessitated by the Moresby and Midway buildups. Such enforced removals left exposed the eastern approaches to Japan. New callsigns were introduced in a special communications drill intended to give the appearance of large forces where none actually existed.⁸⁰

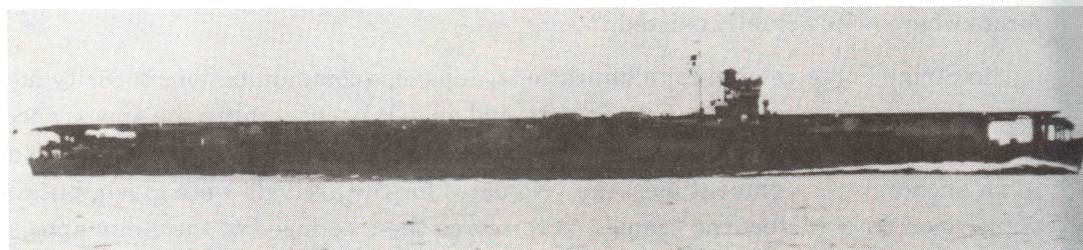
In Strike Force-related communications, Japanese communications security measures may also explain what Melbourne intercepted on 4 May concerning the appearance of the *Kaga* (CarDiv 1), CarDiv 2, *Hiryu*, *Soryu*, and elements of BatDiv 3 and CruDiv 8 at Truk in an anchorage assignment message. No dates for the arrivals were given, but a second translation from Melbourne seemed to reinforce the likelihood of the *Kaga* appearing at Truk when "her repairs" had been completed.⁸¹ There are a number of explanations for the messages concerning the *Kaga*, CarDiv 2, etc., appearing at this time. Whatever might have been the real reason for the messages, they added momentarily to the confusion by rekindling the mistaken idea among U.S. analysts that this activity was in some way related to the Moresby operation.

The Japanese security measures affected American cryptanalysis and traffic analysis and slowed the development of two major discoveries: the role of the Strike Force in the invasion and the impact on X-day of bad weather delaying the progress of the Strike Force from Truk to the Coral Sea. On 2 May 1942, both Hawaii and Melbourne intercepted one and possibly two messages for the Strike Force detailing this information and much more. One message concerned the delivery of carrier aircraft to Rabaul by CarDiv 5 and the fact that bad weather was interfering with flight operations. The resulting delays caused a postponement of the Strike Force's schedule until 8 May (7 May on the U.S. calendar).⁸²

On 3 May, Melbourne cryptanalysts noted that a possible second message to the carriers implied that the Strike Force planned to pass north-northeast of Bougainville before its aircraft bombed Tulagi.⁸³ The same message, according to Hypo, ordered the Strike Force to bomb Moresby on X-2 and X-3. Based on these messages, Hypo concluded



Japanese Warship Hiryu



Japanese Warship Soryu

that X-Day was 10 May. It was not until the fifth, however, after much activity between Hypo and the other two centers in technical channels, that these translations were finally resolved and CINCPAC was able to advise the task forces of Japanese intentions:

CINCPAC 050329Z to CTF16 and 17: Jap Commander Moresby Striking Force (ComCrdiv5) indicates 4 May that if Blue Striking Force is determined in Coral Sea (questionable location) Orange Striking force will proceed North North East of Bougainville thence to southward. At 0600 Item 5 May after arrival unknown place will proceed accordance further orders. If no further orders will go to Tulagi. If plane search in southern and another sector needed Carrier Div 5 to send his bombers to Tulagi at daybreak.⁸⁴

CINCPAC 050345Z to CTF16 and 17: Reliable indications of 3 May: Orange Moresby Striking Force composed of Crdiv5 and Cardiv5 will launch attacks on Allied bases Port Moresby area on Xray minus 3 or Xray minus 2 days. Attacks to be launched from Southeast (fairly good but not certain). Xray day not known but one indication points to 10 May as Xray day. Above attacks to be carried out until successful completion by Orange.⁸⁵

3

Meanwhile, MacArthur notified Admiral Fletcher concerning the forces he was likely to encounter at Moresby. Specifically, throughout the day on 4 May MacArthur sent messages summarizing enemy activity at Tulagi, Savo, and Guadalcanal, and especially a report of an aircraft carrier and a possible battleship/cruiser in position *west* of Bougainville; all this information was based on aerial reconnaissance.⁸⁶ Messages based on aerial reconnaissance usually gave the CTFs the locations as well as the types of Japanese vessels sighted.

By 5 May, the centers were once again reporting on translations made the same day. Derived from Japanese messages on 5 May was the fact that an "Occupation Force" (a) was still in the Coral Sea*; (b) would not be complete until joined by the Tulagi Force at 1400 on 6 May 1942; and (c) would not leave the Coral Sea* before 1800 on the 7th when it "moved south of Emerald."⁸⁷ (*What was probably meant by the Japanese in these instances was Solomons Sea, the body of water between Bougainville and Papua/New Guinea, where the ships were actually located.) In addition, General MacArthur informed Admiral Fletcher and Admiral Nimitz that reconnaissance aircraft from Australia reported sighting a Japanese carrier, a cruiser, and a tender in the western Solomons Sea. The locations given were west not east of Bougainville, indicating the carrier was not part of the Strike Force.

MacArthur's headquarters also published a translation supporting the strong probability that the carrier and its escorts were part of the "Occupation Force." The 5 May Japanese Navy message gave a location for the Occupation Force that corresponded exactly with that of the carrier in the reconnaissance reports. Late on the fifth, in a rare departure from normal practice, MacArthur's headquarters sent Fletcher and Nimitz a translation from the Melbourne RI center that stated that at "0600 5 May the MO Occupation Force" will be in position "8 degrees north, 155 [degrees] blank minutes east speed 23 course 300."⁸⁸ Moreover, COMINT revealed that these ships did not plan to leave the Solomons Sea until 7 May after they were joined by the Tulagi Force.⁸⁹

Melbourne also published translations concerning Japanese reconnaissance flights over the Coral Sea by 5AAF fighters and called attention to the use of Rabaul radio as a tactical headquarters by Admiral Inouye and possibly other commanders.⁹⁰ Other translations revealed the scope of Admiral Inouye's responsibilities regarding the forces involved in Moresby and the entire region northeast of Australia.⁹¹ These items were not considered important enough by either Nimitz or MacArthur to be forwarded to the task forces at that time.

On 6 May MacArthur's reconnaissance aircraft filled the sky with activity over the vulnerable Japanese convoys awaiting the appearance of the Striking Force. The Japanese Invasion/Occupation, Covering, and Support Forces, including the carrier *Shoho*, circled between Deboyne and Bougainville, where they were repeatedly spotted by American reconnaissance aircraft and attacked by B17s from Moresby. None of this activity was reflected in the communications of Japanese air patrols reportedly in the

same area, suggesting that Japanese aviators were avoiding contact with the American patrols.⁹²

Throughout the 5th and into the 6th, MacArthur repeatedly sent B17s to bomb the Japanese convoys. Each sighting and each attack was dutifully reported to the American task force commanders along with the location and makeup of each group of ships.⁹³ In the message dispatched at 060145Z, MacArthur's headquarters also notified the task force commanders that, from COMINT intercepted after 2230Z on the 5th, he learned that the Japanese had sighted a U.S. carrier and cruisers "on course 190 speed 20."⁹⁴ This message, which lacked a meaningful reference point and was either highly inaccurate or poorly decrypted/translated, represented the first indication that the Japanese knew where the American carriers were located.

As dawn came on 7 May, the two American task force commanders knew far more than their Japanese counterparts about the plans and dispositions of the opposing forces. Through a combination of communications intelligence and aerial reconnaissance, they knew that a *single* Japanese carrier and its escorts had actually been sighted *west* of Bougainville and that the Japanese convoys carrying troops for the invasion of Moresby and their protective covering forces were also loitering in the Solomons Sea west of Bougainville.

From communications intelligence alone they knew that the Japanese were devoting three carriers to the Moresby operation, the *Shoho*, the *Shokaku*, and the *Zuikaku*; the Invasion Force covered by the *Shoho* planned to enter the Coral Sea around the southern end of Papua/New Guinea after capturing the islands of Deboyne, Samarai, and other potential seaplane bases in the Louisiades; the two Strike Force carriers of CarDiv 5, the *Shokaku* and the *Zuikaku*, were passing north-northeast of Bougainville probably to enter the Coral Sea south of Tulagi; the Strike Force intended to approach from the southeast and bomb Moresby on X-3 and X-2; and that X-day was probably 10 May.

THE BATTLE BEGINS

The Battle of the Coral Sea began on X-3 day, 7 May 1942. At 0815 local time a *Yorktown* reconnaissance pilot informed Admiral Fletcher of two carriers and a Japanese task force at 10 degrees south, 152 degrees 27 minutes east. This location, where the Solomons Sea and the Coral Sea meet, was consistent with the reports from communications intelligence and sighting reports from MacArthur's aircraft. Because of improper encoding, the reconnaissance report was inconsistent with intelligence in identifying two carriers. A little over an hour later, Fletcher launched a full air strike from both the *Yorktown* and the *Lexington* against what he had every reason to believe was the *Shoho* escorting the Moresby Occupation Force leaving the Solomons Sea. At approximately 1136 local time, Admiral Fletcher was undoubtedly gratified to receive that brief but famous message from Lieutenant Commander R. E. Dixon, a dive-bomber squadron commander from the *Lexington*: "Scratch one Flattop."

During the next few hours Admirals Fletcher and Fitch received the bulk of their COMINT support from radio intercept detachments placed aboard their carriers by Hypo.⁹⁵ Admiral Fitch was also supported by a detachment in which the linguist was the late Admiral Ranson Fullenwider, who left no record of his experiences during these historic events. The *Yorktown* detachment closely monitored the efforts of CarDiv 5 to recover aircraft from the carrier *Shoho*. They followed closely the Japanese Strike Force's attack against the oiler *Neosho* and its escort the destroyer *Simms*. The linguist has reported that he used COMINT to influence Admiral Fletcher not to risk discovery of his task force by breaking radio silence to either warn or recall the two vessels.⁹⁶ CTF 16 was a considerable fighting force quite able to defend itself. There may be another explanation for this dubious decision.

At 1749 local time, the *Yorktown*'s radar detected approaching enemy aircraft about twenty-five miles away. Fletcher launched fighter protection immediately, and the American aircraft quickly found the approaching Japanese. About thirty minutes later the Japanese abandoned all radio security, and the detachment reported to Fletcher a message to Commander, CarDiv 5, that "his attack squadron has been annihilated by enemy fighters."⁹⁷

Before dawn on 8 May, Hypo provided CTFs 16 and 17 the new callsigns, frequencies, and procedures being used by the Japanese Strike Force and gave a new location for the Japanese carriers. They were then located only slightly to the northeast of the American task forces.⁹⁸ Within three hours of receiving the message, Admiral Fletcher's planes, searching to the east as directed, found the enemy carriers. Shortly afterward Admiral Fletcher radioed both Nimitz and MacArthur that a Japanese naval force consisting of "2CV, 4CA and many DD" was located at "Lat 12 Long 156." Fletcher gave his own position as "[Lat] 14-30 Long 154-30."⁹⁹

The attack on the *Yorktown* and the *Lexington* lasted a little less than an hour and a half, from 1113 to 1240 local time. Immediately after the attack, as happened the day before, the Japanese pilots and radio operators aboard the carriers "opened up their radios" and discarded security considerations. It was apparent immediately that something had happened to the *Shokaku* when it failed to respond to calls from its aircraft and the *Zuikaku* began sending homing signals and recovering the *Shokaku*'s planes. The intercept operators aboard the *Yorktown* listened to these efforts and reported throughout the afternoon and evening that many aircraft were lost at sea or landed on isolated island beaches. After the *Yorktown* air groups completed their attacks, intercept confirmed for Fletcher the damage reports he was receiving from his aviators.¹⁰⁰ At 1237 local time Fletcher notified Nimitz and MacArthur that he had damaged an enemy carrier with two 1,000-pound bombs and two torpedo hits.¹⁰¹ He also reported that his own force had sustained some damage.¹⁰² This message was probably welcome in Hawaii since a few minutes earlier the Melbourne center had sent them a message indicating a U.S. carrier had been sunk. A message from the *Zuikaku* intercepted by Hypo at about the same time contained even more ominous news. It said that one U.S. carrier had been sunk and another had sustained three sure direct hits.¹⁰³ Both centers combined to place CINCPAC in

the remarkable position of learning from Japanese sources the extent of damages to his forces before he received the damage reports from his own task force commander.

Fletcher and Inouye were apparently unable to assimilate and evaluate the unique and voluminous reports both undoubtedly received from COMINT and other sources about plane losses and carrier damage sustained by their enemy counterpart. Accordingly, each chose similar courses of action late in the afternoon of 8 May: each broke contact with the enemy and retired from the scene. Fletcher advised Nimitz of his plans to retire overnight and "fill *Yorktown* complement planes as far as possible from *Lexington* and send that ship to Pearl."¹⁰⁴ Sensing that his intentions to retire might be misunderstood, Fletcher also advised Nimitz and MacArthur that "another enemy carrier has joined enemy force."¹⁰⁵

Similarly, Admiral Inouye, aware of his own losses, particularly in aircraft of all types and pilots, ordered the Strike Force to break contact. He also postponed the attack on Port Moresby. Melbourne intercepted the postponement order and reported it the same day.¹⁰⁶ Yamamoto abruptly rescinded Inouye's order to break contact and ordered Admiral Takagi, Commander, CruDiv 5, to find and destroy the remaining U.S. fleet. In less than a full day, however, the search was dropped. The tight Japanese schedule for post-Moresby operations took control of events.¹⁰⁷

OVERVIEW

The Battle of the Coral Sea was unique in U.S. naval annals and was the scene of many cryptologic triumphs. To OP-20-G and the radio intelligence centers in Hawaii, Corregidor, and Australia, the battle and its preliminary sparring afforded for the very first time the opportunity to support three major shore-based headquarters, Washington, Pearl Harbor, and Melbourne, each vitally concerned with both the conduct and the outcome of a major sea battle. By providing accurate and timely warnings of Japanese intentions beginning as early as January 1942, COMINT enabled Admiral King and Admiral Nimitz to position scarce U.S. Navy carrier task forces where they could interrupt and frustrate Japanese plans and intentions. Moreover, after the Japanese Navy's General-Purpose Code (JN 25) became readable in March 1942, COMINT provided invaluable information concerning the Japanese timetable and order of battle for the invasion of Port Moresby up to the very eve of the battle.

The battle and its preliminaries were also unique to OP-20-G at the fighting echelons. Special intercept/linguist detachments, the idea for which can be traced to the U.S. Asiatic Fleet's attempts to monitor Japanese communications during the Imperial Naval Exercises of the 1930s, were placed on board the aircraft carriers *Enterprise*, *Lexington*, and *Yorktown* in early 1942.¹⁰⁸ These detachments provided tactical support to the task force commander during extended carrier sorties in the regions between Australia, Japan, and Hawaii.

When in contact with the enemy, the detachment intercepted any HF communications related to the action. On 7 and 8 May, in particular, the RI units provided an invaluable

service to the commander afloat by following closely the communications between Japanese carriers and their aircraft. When not occupied with periods of actual fighting, they helped to explain COMINT-based reports sent to the task forces by their headquarters in Washington, Hawaii, and Melbourne. This vital service closed a critical COMINT loop by linking the strategic system ashore and the tactical support system at sea. By all accounts, however, the detachment/command relationship cannot be said to have functioned smoothly at this stage of the war.

It is important to remember, however, that U.S. carriers observed a strict regimen of radio silence until located by the opposing force. This policy precluded *pre-hostilities* information of any kind passing from the task force to either CINCPAC or COMSOWESPAC headquarters. With minor exceptions, therefore, even after the Japanese discovered the American carriers, the commands ashore did not benefit from the local knowledge of the task force commander.¹⁰⁹

There is no indication that RI units afloat prepared any reports for consumption beyond the limits of their respective flag plots. This conclusion is reinforced by the fact that reports from the shore-based centers did not contain details of the battle revealed by the RI units. Where there was duplication, it was clearly based on independent intercept, such as ship-to-shore communications or sighting reports sent by Japanese aircraft or relayed by Japanese ground stations that were heard by both the detachment(s) and Hypo/Melbourne. It is also clear that, if the shore-based centers were to support their respective commands with details of a battle in progress, further refinements of the instructions to the RI units afloat were required. The time remaining before the next crisis, however, did not permit the system to develop any corrective measures.

Immediately after the battle, Admiral King accused Admiral Fletcher of an "apparent lack of aggressive tactics," i.e., his failure to launch night attacks. This criticism was echoed by Biard, when he described Admiral Fletcher as confused about Japanese intentions and dispositions.¹¹⁰ Both Nimitz and John Lundstrom, author of *The First South Pacific Campaign: Pacific Fleet Strategy December 1941–June 1942*, placed part of the blame on communications intelligence. Lundstrom specifically noted in an April 1983 article in *Cryptologia* that COMINT failed Admiral Fletcher, who, as a result, "placed his Task Force 17 in jeopardy" on the morning of 6 May 1942.

In his letter to Admiral King, Admiral Nimitz excused Fletcher's "long delay and apparent lack of aggressive tactics." He said that these failings "can be charged to the lack of sufficiently reliable combat intelligence."¹¹¹ If this was a criticism of Biard, it was probably unwarranted. His after-the-fact log indicated that the Japanese radios were copied as soon as they broke radio silence the morning of 7 May. Biard, according to his account, was also aware that Hawaii and Melbourne sent Fletcher regular intelligence advisories prior to the battle. His monograph, while discussing in critical terms the disposition of Admiral Crace's task force of Australian and American warships, actually indicated that on 7 May 1942 Fletcher had in fact directed his search aircraft east of the Louisiades where COMINT had foretold, and aerial reconnaissance had already located,

Japanese transports, a carrier, and other warships that represented a threat to Crace. (In Biard's article in *Cryptolog*, Admiral Crace's name is consistently misspelled.)

With reference to the situation summary for 6 May, outlined above, it is difficult to imagine what more the combat intelligence centers might have contributed concerning the Japanese forces prior to the engagement. Though Lundstrom was unaware of its existence, Biard's log indicates that the RI detachments were most supportive of Admiral Fletcher during the two days of actual fighting. In the context of the total intelligence picture available to Admiral Fletcher, there may never be another situation in which a single source of information proves more supportive. Moreover, it is equally difficult to imagine a situation in which two intelligence sources proved more complementary than COMINT and aerial reconnaissance were on 5 and 6 May 1942.

THE LAND ROUTE TO PORT MORESBY

The Japanese stubbornly refused to concede that this attempt on Moresby would be their last. Between 9 and 19 May, the Japanese continued to manifest an interest in reopening the original Moresby scenario. On the 19th, in fact, Layton reported that 15 June had again been indicated as the date of resumption. On the same day Melbourne published a message from Tokyo Naval Intelligence, dated 18 May 1942, which, though unremarked by the other centers, acknowledged that "enemy" aircraft could now prevent Japanese resupply of Moresby (once taken) and proposed construction of a land route from Lae.

The feasibility of the idea was recommended for study, and for nine days Melbourne continued to publish translations on this subject. On 27 May, in fact, a message dated the 23d was published containing a detailed route across the Owen Stanley Mountains proposed by the 8th Base Force, Rabaul. This message referred to "General Staff Serial 507," suggesting very high-level Japanese interest in the idea of a land route possibly to both capture and resupply Port Moresby.¹¹² Such ideas die hard, especially when they gain the favor of high-level planning staffs, but immediately after the Battle of the Coral Sea, other plans dominated the affairs of the Japanese Army and Navy.¹¹³

NOTES

1. *Memoirs of Prince Konoye*, Morison III, 46.
2. Hattori Takushiro, *The Complete History of the Greater East Asia War*, Masu Publishing Co., 1953, Vol. II, 101. Hereafter Hattori.
3. From a translation of this order found in the King papers at the Navy Historical Center and generously called to my attention by a fellow researcher, Captain Allen Bath, USN (ret).
4. H.P. Willmott, *The Barrier and the Javelin*, Annapolis, Maryland: Naval Institute Press, 1983, 3. Hereafter Willmott.
5. Hattori, Vol. II, Part 1, 113-15.
6. Hattori, Vol. II, Part 1, 100-01, 114-15, and 123.
7. It was from the airfield at Lae that Amelia Earhart began the last and fateful leg of her around-the-world flight in 1937.
8. This description of Japanese plans is based on the following: Hattori; Fuchida Mitsuo and Okumiya Masatake, *Midway, The Battle that Doomed Japan*, Annapolis, Maryland: U.S. Naval Institute, 1955. Hereafter Fuchida; John B. Lundstrom, *The First South Pacific Campaign; Pacific Fleet Strategy December 1941-June 1942*, Annapolis, Maryland: Naval Institute Press, 1956. Hereafter Lundstrom; and Samuel Eliot Morison, *History of U.S. Naval Operations in WWII*, Boston: Little, Brown and Co., 1971. Hereafter Morison.
- Fuchida and Hattori describe a process of compromise beginning in January 1942 both within the navy and between the navy and the army that caused the Imperial General Staff's prewar policy of a strategic defense to come under attack, primarily by planners in the staff of the Combined Fleet. See Fuchida, 48-63, and Hattori, Vol. II, Part II, 100-49. See also Lundstrom, 23-25 and 40-41, who follows the Japanese accounts though not entirely from the same sources. Morison, Vol. II, 2, noted that a strategy that relieved the army of any large-scale commitment of forces had actually been formulated in 1941 and published in Fleet Op Order #1, in November 1941. This contention is not supported by the Combined Fleet translation cited above or by Japanese accounts.
9. Lundstrom, 27.
10. Hattori, Vol. II, 124.
11. Ibid.
12. Lundstrom, 39-40.
13. Morison, Vol. III, 259-60.
14. See, for example, his message of 2 January 1942 to CINCPAC that urged an "expedition of raid character against enemy bases in Gilbert Islands" Blue Flag Messages, Reel TS1, Naval Historical Center, Operational Archives.
15. Morison, Vol. III, 263-64.
16. Morison, Vol. III, 267; and Nimitz Command Summary, 1941-1942 NSA History Collection IV W II.2.2. Hereafter Nimitz Command Summary. The Nimitz Command Summary for 25 February 1942 contained a Japanese message to Berlin that mentioned that "Japan will be unable to sustain losses [in pilots and aircraft] at their present rate."
17. Morison, Vol. III, 387-89.
18. Lundstrom, 40-41.
19. Lundstrom, 46; SRH012, RG45T, NA.
20. It was the *Shoho's* fate to be known in COMINT by the wrong name throughout its brief existence. Called the *Ryukaku* as a result of cryptanalytic and translation errors, its correct name was revealed by a POW in late 1942. Hereafter, whenever the incorrect name appears, it will be followed by an asterisk (*).
21. SRMN012, Com 14 TI Summaries with comments by CINCPAC Intelligence and Warplanes Sections; RG457 NA. To distinguish between the output of Com 14 and CINCPAC Intelligence, I use the letters H for Com 14 and L(Layton) for CINCPAC. SRMN012/H, 17 March 1942, repeated Corregidor's unlocated report of this event.
22. Lundstrom, 66.
23. Morison, Vol. IV.
24. See Com 14 020344Z May 1942, in CINCPAC Message Files, RG38, NA.

25. Three groups were formed to implement the Directive: MO Striking Force, MO Invasion Force, and Tulagi Invasion Force. South Seas Op Order #13 also specified "Cooperating Forces" in the form of Base Air Forces, and an AEF, (i.e., submarines in an Advanced Expeditionary Force), along with a timetable of events. The timetable was as follows:

- 3 May, seize Tulagi and establish a seaplane base at Deboyne;
- 4 May, invasion convoy depart Rabaul and land six days later;
- 10 May, seize Port Moresby;
- 15 May, capture Ocean and Nauru Islands.

The final section of OP Order #13 gave a T/O (Table of Organization and Functions): MO Striking Force (CarDiv 5): The MO Striking Force was to cover the Invasion Force, seek and destroy allied naval force, attack allied air bases in Australia and Moresby; MO Invasion Force: This force consisted of troopships, the *Shoho*, and four CAs: and the Tulagi Invasion Force. The Tulagi force was to break up and join the MO and RY Forces after Tulagi was seized. Lundstrom, 68. RY meant Ocean and Nauru.

26. History of OP-20-GYP, Classified Naval Archives, Crane Indiana. Hereafter History of OP-20-GYP.

27. Fabian interview, NSA Oral History #09-83.

28. SRMN012, RG457, NA.

29. See SRMN012/H and L for the period 17-19 February 1942. RG457, NA.

30. See, for example, COMINCH message 021718Z January 1942, in Blue Flag messages, Reel #TS-1, Naval Historical Center, Operational Archives.

31. Rear Admiral Edwin T. Layton, with Captain Roger Pineau and John Costello, *And I Was There*, (New York: William Morrow and Co., 1985), 357.

32. Ibid.

33. Dyer Interview; U.S. Naval Institute, 224.

34. History of OP-20-GI, NSA History Collection, IVWI.5.3. Hereafter History of OP-20-GI.

35. Ibid.

36. History of OP-20-GI; SRH012, RG457 NA.

37. SRMN012(L) 29 January 1942, RG457, NA.

38. SRMN012 (L), RG457, NA, 25 February 1942.

39. SRMN008, RG457, NA.

40. SRMN004, RG457, NA.

41. See, for example, Bulletins number 46 and 47, 300131Z April 42 and 010311Z May 1942, respectively.

42. SRMN008, RG457, NA.

43. SRMN012, RG457, NA. Layton, 378-79, identifies himself as the author of the Bulletins and mentions some of these sources.

44. See the Operational Priority messages from Com 14 to CTF 16, 070630Z and 071852Z May 1942 in the CINCPAC message files, RG38, NA.

45. The record referred to here is the CINCPAC message file.

46. SRNS1517, 20 March 1942, Fleet Radio Unit Melbourne (7th Fleet) Daily Digest, 20 March 1942-30 October 1944, RG457, NA.

47. See NSA OH 09-83, Captain Rudolph T. Fabian, USN (ret).

48. Denniston papers, NSA History Collection. Although Denniston used the word *cryptography*, what he meant was *cryptanalysis*.

49. SRH 355, RG457, NA. Hereafter Holtwick.

50. History of OP-20-GYP-1.

51. Ibid.

52. Layton, 376.

53. History of OP-20-GYP-1.

54. Dyer interview.

55. According to the Clarke Papers in the NSA History Collection, the British, finding it completely counterproductive, abandoned this practice during the mid- to late thirties.
56. Layton.
57. SRMN 012/H, RG457, NA, 2 April 1942.
58. SRH012, RG457 NA, 3 April 1942.
59. One was reported (AS), which analysts believed stood for San Francisco. Com 14 to COMB 061948Z May 1942, CINCPAC message file.
60. SRNM0123/0126, 23 March 1942. Miscellaneous records pertaining to Japanese Naval Communications WWII, RG457, NA. Hereafter only the SRNM number and date will be given.
61. CV, CarDiv1.
62. SRH012, 7 April 1942, SRNM0381, 8 April 1942, SRNS1517, 9 April 1942. Fleet Radio Unit Melbourne (7th Fleet) Daily Digests 20 March 1942–31 October 1944. Hereafter only the SRNS number and date will be given. All are RG457 NA.
63. SRNM0913, RG457 NA, 9 April 1942. This message revealed the existence of an MO Striking Force, i.e., carriers; MO Attack Force; RZP Occupation Force; RZP Support Force; RXB Occupation Force; and RY Occupation Force. RXB and RY were not immediately identified.
64. SRMN012/L RG457 NA, 11 April 1942.
65. D.M. Horner, "Special Intelligence in the Southwest Pacific Area in WWII." *Australian Outlook Journal of the AIIA*, December 1978, Vol. 32, No. 3; Willoughby Papers, U.S. Army Military History Institute, courtesy Dr. E. Drea.
66. Ibid.
67. The limits of MacArthur's air operations in early May were detailed in part one of a 15 May 1942 message from COMINCH to CINCPAC, 142100-142118Z May 1942. CINCPAC message file, RG38, NA.
68. Ibid.
69. Ibid.
70. SRMN012/L, RG457 NA, 23 April 1942.
71. SRNM0509H, SRNS 1517, 19 April 1942; SRNM0613/N 20 April 1942 and SRMN012/H, 22 April 1942; all RG457 NA.
72. SRNM 0559/H, RG457 NA, 23 April 1942.
73. SRNM0687, 29 April 1942; SRH012; SRNS 1517; CINCPAC Enemy Activities File, SRH 272/H; SRMN012/L; all 30 April 1942 and all RG457 NA.
74. SRNM0712, 30 April 1942 RG457 NA.
75. SRNM0713 and SRMN012, 1 May 1942, RG457 NA.
76. SRNS 1517, 1 May 1942, RG457, NA.
77. NSA History Collection IV W VII.18.
78. Morison, Vol. IV, 21–28: The Tulagi Invasion Force sailed from Rabaul on 30 April 1942. Willmott: The Strike and Covering Forces sailed from Truk on 1 May. Lundstrom: CINC 4 changed his headquarters from Truk to Rabaul on 1 May 1942.).
79. SRMN012, 30 April 1942 and 1 May 1942; SRNS 1517, 1 May 1942, all RG457 NA.
80. SRH012, 3 May 1942, and SRMN012/L, 5 May 1942, RG457 NA.
81. SRNS 1517, 4 May 1942, RG457, NA.
82. SRNM0911/N, 2 May 1942, RG457 NA.
83. SRNS1517, 4 May 1942, and SRH012, 3 May 1942, both RG457 NA.
84. CINCPAC message file, RG38, NA. See also SRH012, 3 May, and SRNS 1517 4, May 1942; both RG457, NA.
85. CINCPAC message file, RG38, NA See also Belconnen [Melbourne] 050150Z, same file.
86. In the CINCPAC message file, RG38, NA, see the following: 040236Z, COMSOWESPACFOR to CTFs; 040950Z COMSOWESPACFOR to all CTFs; 041059Z COMSOWESPACFOR to CTFs.
87. SRNS1517, SRMN012, 5 May 1942, RG457, NA.

88. COMSOWESPACFOR to CTF 16, CTF 17, CINCPAC, etc. 051200Z May, CINCPAC Message File, RG38, NA.
89. SRNS1517, SRMN012, 5 May 1942, RG457, NA.
90. CINC 4 removed his headquarters from Truk to Rabaul on 1 May 1942. Lundstrom.
91. SRNS1517, SRMN012, 5 May 1942; RG457, NA.
92. SRNS1517, 6 May 1942, RG457, NA contained a translation of "5AAF Battle Report No. 26" for 5 May that reported on the patrol of "9 type O fighters."
93. MacArthur to all CTFs 060025Z, 060107Z, 060145Z, 060246Z, 060754Z, 060925Z, 061226Z.
94. All of these messages were found in the CINCPAC Message file, RG38, NA.
95. Monograph by Forrest R. Biard, Captain USN (ret), Winter 1989, Vol. 10, No. 2, a special issue of *Cryptolog*, a publication of the Naval Cryptologic Veterans Association (NCVA). Biard was a linguist for the detachment serving Admiral Fletcher. Hereafter Biard Monograph.
96. Ibid.
97. Ibid.
98. Hypo to CTFs 16 and 17 071825Z May 1942, CINCPAC message file, RG38, NA.
99. CTF 17 072228Z, May 1942, CINCPAC message file, RG38, NA.
100. Biard monograph.
101. CTF 17 080137Z, May 1942, CINCPAC message file, RG38, NA.
102. Ibid.
103. Belconnen to COMB 080110Z May 1942, CINCPAC message file, RG38, NA; SRNM0888/N, 1129 local time 8 May 1942; SRNM0897/H 1100 local time 8 May 1942; SRNM0908/H, Rabaul report of 8 May 1942; all RG457 NA.
104. CTF 17 080252Z, May 1942, CINCPAC message file, RG38, NA.
105. CTF 17 080332Z and 080348Z, May 1942, CINCPAC Message File, RG38, NA.
106. SRNS1517, 8 May 1942, RG457 NA.
107. SRNS1517, 8 May 1942; SRNM0865/0999, 0908, 0910, all 8 May 1942; SRH272, SRNM0909 8 May 1942, all RG457 NA; Fuchida.
108. HC IV W XI.14; SRH 289, RG457, NA.
109. A joint CINCPAC/COMSOWESPACFOR postoperation evaluation (CINCPAC 200359Z, May 1942, CINCPAC message file, RG38, NA) indicated that all task forces maintained strict radio silence until their presence was discovered by the enemy. The Nimitz Command Summary and the CINCPAC message file reflect postdiscovery messages from task force commanders to a wide audience. They were not intelligence reports, however.
110. Biard monograph.
111. Nimitz to King, 29 May 1942, King Collection, U.S. Navy Historical Center, Operational Archives.
112. SRMN012/L, SRNS1517, 19 May 1942, SRNS1517, 20 May, 27 May, and 28 May 1942, all RG457, NA.
113. For further information on Japanese preparations for an overland assault on Port Moresby, see the work of Dr. Edward J. Drea in *MacArthur's Ultra: Codebreaking and the War Against Japan*, Lawrence: University Kansas Press, 1991.

Part Two: The Battles for Midway and the Aleutians

JAPANESE STRATEGY

The successful record of the Imperial Japanese Combined Fleet against the combined American, British, and Dutch fleets following Pearl Harbor must have mitigated Japanese disappointment that in the attack on 7 December 1941 the Striking Force failed to sink or damage a single U.S. carrier. It was primarily the objective of drawing out destroying the U.S. carriers that prompted Admiral Isoroku Yamamoto, Commander in Chief of the Combined Fleet (CINC Combined), to revive an earlier plan for the capture of Midway and resubmit it to the Navy General and Imperial General Staffs.¹

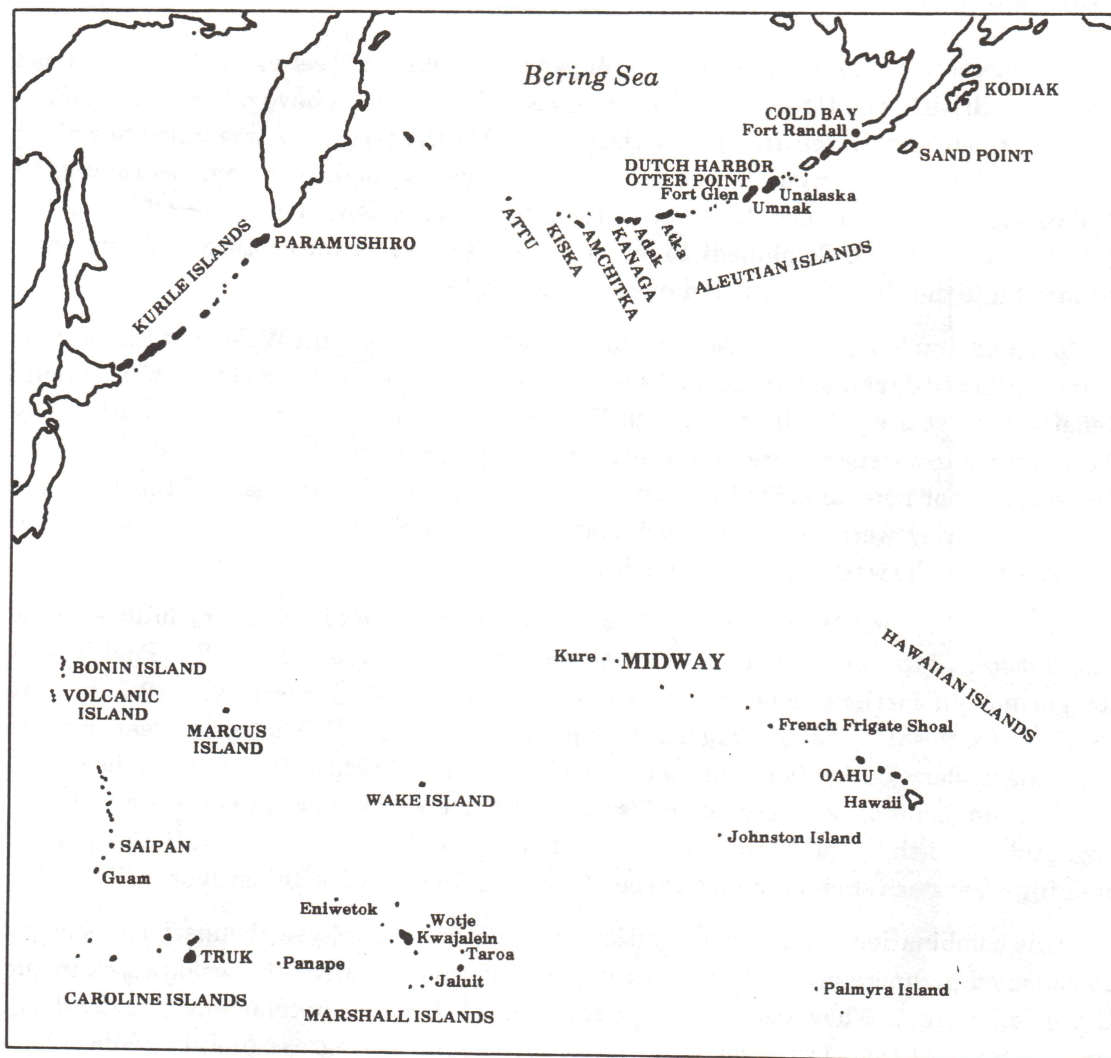
In Yamamoto's view, possession of this island base, along with Wake and the Marcus Islands, allowed Japan to pursue its Asian policies behind an impregnable eastern shield. General Staff strategists disagreed with Yamamoto and his Combined Fleet staff. They chose instead to pursue a more conservative strategy. They reasoned that, in the long run, Japan could not hope to defend a chain of isolated bases far to the east of the Japanese homeland. They were also convinced that the United States would never launch an offensive far to the west of an American base.

In Japan in April 1942, however, it was hard to conceive of a military failure in the near future. Japanese naval superiority over the United States in the Pacific was staggering. In carriers alone it was nearly three to one (11-4 overall and 10-3, in May 1942). In battleships, those paragons of seapower in 1942, the U.S. losses at Pearl Harbor made the disparity even more one sided (11-0).² Until early May 1942, despite the efforts of U.S. submariners, Japanese naval losses, particularly in surface forces, were virtually negligible, and their gains so immense that to the Combined Fleet Staff the task of creating an eastern shield promised to be almost effortless if undertaken at once.

This combination of success in battle and overwhelming physical superiority greatly emboldened planners on the Combined Fleet Staff who could see the weaknesses in the U.S. Pacific Fleet. They also knew that this weakness was only temporary, particularly since passage of the "Two Ocean Navy" bill by the U.S. Congress in July 1940. On 7 December 1941, the U.S. was building 15 battleships, 11 carriers, 54 cruisers, 191 destroyers, and 73 submarines.³ Because of the number of ships under construction, the Japanese knew that the day was fast approaching when the United States would possess the capability to mount overpowering naval campaigns in the western Pacific. They had to engage the U.S. Pacific Fleet in a climactic, victorious showdown as early in 1942 as possible.⁴

The naval staff under Rear Admiral Osami Nagano raised objections to the plans implementing Admiral Yamamoto's Midway and Aleutians strategy. Their criticism concerned problems of logistics in maintaining and defending such distant bases. Citing

as counterarguments the vulnerable northeastern approaches to Japan, the Combined Fleet Staff under Rear Admiral Matome Ugaki methodically overrode all objections one by one.⁵ Undoubtedly sharing the misgivings of their colleagues on the Naval General Staff, but after much deliberation, the Imperial General Staff reluctantly agreed on 16 April 1942 that this operation could occur after Fiji and Samoa had been secured.⁶



Midway - Areas of Operation

On 18 April, two short days after the Japanese had decided to attack Midway, Lieutenant Colonel James Doolittle, U.S. Army Air Corps, led a courageous band of American airmen from the deck of the carrier *Hornet* in a spectacular air strike against several cities in the Japanese homeland. Though Japanese submarines detected its presence northwest of Hawaii on 10 April and Japanese radio intelligence reported its probable intentions on the 14th, the American two-carrier task force enjoyed the element of complete surprise. By launching land-based bombers instead of conventional carrier



Lieutenant Colonel James Doolittle on board USS *Hornet*

bombers, the Americans effectively disrupted the timing of Japanese defenses and eliminated in a single stroke all objections to Japan's concept of extending the first line of defense as far to the east as possible and as soon as possible.⁷ By the end of April, the Japanese approved a new Midway-Aleutians timetable moving this operation ahead of Fiji/Samoa. The Imperial General Staff also chose early June for the operation to avoid disrupting the Ocean/Nauru operations in mid-May.⁸

The centerpiece of their Midway plan was an armed feint toward Alaska followed by the assault on Midway. When the U.S. Pacific Fleet responded to the assault on Midway, another Japanese task force under Admiral Yamamoto himself, lurking unseen to the west of the Midway Strike Force, would fall upon and destroy the unsuspecting Americans. If successful, the plan would effectively eliminate the U.S. Pacific Fleet for at least a year and place the easternmost Japanese base on the 180th parallel. There it would represent a positive threat to Hawaii and an outpost integrated with Wake and the Marcus Islands from which ample warning of any future threat by the U.S. would come. The occupation of Adak, Kiska, and Attu was viewed as a temporary measure providing protection of the northern flank of the Midway forces and a temporary barrier for any immediate U.S. strikes against the Japanese homeland. The Alaskan operation would also provide a lift to Japanese civilian morale and act as an irritant to U.S. military and political decision makers. When the Japanese began to implement their plans, using extensive war games and communications exercises, vital naval radio communications became virtual mirrors of their intentions to those who knew how to interpret them.

JAPANESE PREPARATIONS

The Japanese Combined Fleet's ambitious plan for the seizure of Midway and the Aleutians and for an epic naval battle with the U.S. Pacific Fleet involved a massive force consisting of warships, transports, auxiliaries, and air strength. The two operations, Alaska and Midway, required the Combined Fleet to supply over 200 ships, including 8 carriers, 11 battleships, 22 cruisers, 65 destroyers, 21 submarines and approximately 700 aircraft.⁹ For the first time since the war began, Admiral Yamamoto, who also commanded the First Fleet, planned to direct operations from his flagship, the battleship *Yamato*. From this vantage point he controlled the timing of the final trap, which, when sprung, would complete the task begun at Pearl Harbor. He began to concentrate the naval elements intended for the Midway campaign in their home ports on the Japanese Inland Sea and elsewhere in Japan. His preparations were interrupted momentarily by the Doolittle raid and the subsequent attempts to find the American carriers. When the search ended, the First Fleet prepared to host a four-day series of war games aboard the super-battleship *Yamato* at its anchorage in the harbor of Hashirajima.¹⁰

The games took as their starting point a prospective invasion of Midway and the Aleutian Islands. At the conclusion of the games on 5 May 1942, Imperial General Headquarters issued Navy Order No.18, which directed Admiral Yamamoto to carry out the occupation of Midway Island and key points in the western Aleutians in cooperation with the army.¹¹

COMINT REFLECTIONS OF JAPANESE PREPARATIONS FOR MIDWAY AND THE ALEUTIANS

The radio communications necessary to assemble, command, and control the huge forces being gathered to implement the Combined Fleet's plans did not escape the notice of U.S. Navy communications analysts, who were usually but not always able to distinguish between Moresby- and Midway-related activities. Using only the outward forms of radio activity as they had before the war began, the U.S. Navy's traffic analysts slowly discovered and disclosed Japanese intentions in the northern Pacific. When the U.S. Navy's cryptanalysts finally broke the seal of the Japanese Navy's General-Purpose Code (JN 25), they found in messages exchanged in radio communications vital details of how the Japanese Navy intended to implement its strategy in this part of the Pacific. Together, U.S. Navy communications analysts, as we shall see, provided key pieces of information for U.S. strategists concerning Japanese plans, intentions, and force levels at Midway by following Japanese fleet movements and war games in detail.

Evidence of a possible Japanese intent to extend their defensive perimeter beyond the Wake-Marshalls-Gilberts line began to appear in naval communications in early 1942. The first indication that the Japanese once again had hostile intentions east of the Marshalls occurred on 5 March, Japan time, when the Fourth Fleet under Vice Admiral Shigeyoshi Inouye launched a minor armed reconnaissance over Oahu. Using seaplanes from the Marshalls refueled on the return leg by a submarine at French Frigate Shoals about 500 miles west of Oahu, the Japanese called this project either their "K Campaign" or "Operation K." It was not intended as a prelude to invasion; however, this feeble if imaginative operation actually supported an American misconception that Hawaii was still a potential Japanese objective.

The limited evidence developed by Hypo concerning the intent behind the "K Campaign" was contained in three reports originated by Layton and Rochefort on 2, 4, and 5 March 1942. (The attack occurred on the night of 4/5 March, Hawaii time.)¹² The first, written by Layton, said the Japanese were preparing an offensive in the Hawaiian area during the week of 5 to 12 March. The last, written by Rochefort, correlated submarine activity at French Frigate Shoals with the bombing of Oahu, concluding that the submarine refueled the aircraft. On 11 March both Rochefort and Layton warned that the real threat to the U.S. Pacific Fleet in the central and northern Pacific lay in the Japanese buildup in ground-based aircraft in the Marshall Islands and the Mandates. All carrier raids – and, as it turned out, all pursuing U.S. warships – were forced to conduct their activities with one eye on the range of those aircraft.¹³

During March and April, the Japanese shifted land-based air units and equipment destined for the occupation and defense of Midway from their homeland bases to the Marshalls and the Mandates. Through analysis of communications activity and exploitation of intercepted messages, navy communications analysts detected and reported daily the Japanese activities, frequently warning that the Japanese were planning an attack on Midway. These warnings were not universally accepted. Evaluations of Japanese naval capabilities by senior U.S. Navy officials in Washington were sometimes perilously inaccurate. For example, in defiance of any realistic appraisal of Japanese capabilities, an all-out attack on the West Coast in 1942 was expected at any time.¹⁴

One of the Japanese undertakings communications analysts and some senior naval officials in Washington found most difficult to understand was the most modest: a reprise of the first K Campaign. References to preparations for a second K Campaign began to appear in Japanese Navy communications in May 1942. Communications analysts in Melbourne and Hawaii quickly and consistently agreed in their interpretation of the accumulating evidence that, from the outset, the Japanese intended to attempt another seaplane reconnaissance of Oahu. On 6 May, Hypo explained that K, or King, was an abbreviation for AK, the Japanese geographic designator that stood for Pearl Harbor.¹⁵

Message volume generated by preparations for this operation was much higher than for the earlier campaign, and there were occasional foul-ups. On 14 May, for example, Layton confused the K Campaign preparations with those of Midway and reported that the second K Campaign was a name the Japanese had assigned to their assembling Strike Forces.¹⁶ On 15 May, Negat mistakenly warned the War Plans staff in Washington (Admiral Richmond K. Turner was head of War Plans at the time) that the K Campaign was to be a large-scale attack on Hawaii.¹⁷ Fortunately, the second K Campaign never materialized. Despite the momentary breakdown in understanding on his staff, Admiral Nimitz agreed with his intelligence advisors in Hypo and Melbourne concerning the true nature of the Japanese operation and took appropriate action to frustrate Japanese plans.

On 13 May, Admiral Nimitz ordered the commander of the Hawaiian Sea Frontier (COMHAWSEAFRON) to provide surface patrols of the French Frigate Shoals area.¹⁸ This order proved to be decisive in thwarting Japanese designs for Operation K. Later that month, when the Japanese submarine captain prepared to take up his position for refueling the Japanese seaplanes, he found a U.S. naval vessel anchored in the lagoon he intended to use. Returning after two days, he found the vessel still there. Unable to fulfill his mission, he was ordered to withdraw, and Operation K was scrubbed,¹⁹ an unsuspecting victim of the U.S. Navy's vigilant COMINT effort.

The vigilance of communications analysts also paid handsome dividends in their early reports of Japanese preparations to attack Midway and the Aleutian Islands. The reports revealed how thoroughly and completely the Japanese Navy relied on its communications to fulfill its objectives. Warnings of Japanese intentions to expand their defensive perimeter eastward in the direction of Midway began to appear in COMINT reports even before the JN 25 messages were fully readable. The digraph AF, from the "A" or American portion of the Japanese geographic designator system, appeared in partially readable messages as early as 4 March 1942. On 13 March, U.S. cryptanalysts broke JN 25, and Corregidor firmly identified AF as Midway.²⁰ AF appeared again on 17 and 24 April in messages translated by Melbourne and Washington, respectively.²¹ Not surprisingly, since they probably shared the same database, Melbourne agreed with the earlier identification by Corregidor. The Corregidor center was evacuated to Melbourne in three increments: 5 February, 16 March, and 6 April 1942.²² OP-20-G agreed with the AF/Midway association but as a communications designator not as a geographic designator, a troublesome distinction when it surfaced later.²³

Indications of hostile Japanese intentions toward Alaska began to appear in COMINT reports published in late April 1942. A warning came from Melbourne on 27 April 1942, when the station published a translation of a message from Admiral Nobutake Kondo, CINC 2. In it he requested charts of the area 50–61 degrees north, 140–165 degrees east, an area encompassing the region from the Gulf of Alaska to Vancouver, British Columbia. On the same day Hypo also published a translated Japanese Navy message concerning the number of planes in "AOE" and "KCN," which were identified as Dutch Harbor and Kodiak Island, respectively.²⁴ In the face of such compelling evidence, although the scope of the Japanese effort remained temporarily hidden, Layton advised Admiral Nimitz and officials in Washington that a Japanese offensive "in the Aleutian chain seems possible in late May."²⁵

Beginning on 1 May, Japanese Navy communications activity from the vicinity of Japan began to increase visibly. Navy analysts soon realized that the additional intercept reflected naval exercises conducted in preparation for both the Midway and Aleutian operations. By studying the form and the substance of these communications, navy analysts obtained an abundance of detail about Japanese plans and the magnitude of the forces to be arrayed against each objective. Their reports enabled Admiral Nimitz to counter the Japanese preparations in his own plans, particularly those for the defense of Midway.

As Japanese ships began to depart their anchorages, communications intelligence provided information on their future dispositions. Some movements probably coincided with the initial Midway Games conferences held on board the *Yamato* and the exercises that followed, while others were only forecasts. Although unaware of the initial conferences aboard the *Yamato*, the centers at Melbourne and Hawaii reported the pairing of CarDivs 1 and 2 for exercise activity in home waters between 3 and 12 May and published the relevant translations. In addition, Hypo provided a translation on 7 May

1942, containing the complete agenda for an "aviation conference" on 16 May called by Vice Admiral Nagumo, who by that date would be anchored in the harbor at Kagoshima.



Vice Admiral Chuichi Nagumo

According to the translation, this was a conference not on strategy but on tactics to be employed in an amphibious assault. It included items such as "the battle for air superiority"; "the study of organizations for use in dive bombing, torpedo attacks, bombing and strafing in the battle for wiping out local resistance"; and "... organization of airfleet aviation and fleet air units ashore and their training." This revealing message not only provided a warning about the type of battle to expect, but it also gave CINCPAC planners excellent insight in formulating their plans to defend Midway. As important as this information was to Admiral Nimitz, it concerned only the air arm of the assault force and none of the surface elements. Information concerning important units such as the Second Fleet was still needed.

During the last days of April and into early May 1942, the status of Admiral Kondo's Second Fleet became clouded with uncertainty. Since the Second Fleet was the strongest surface force in the entire Combined Fleet, it was vital that Admiral Nimitz know the intentions and whereabouts of Admiral Kondo at all times. Several factors contributed to the temporary disappearance of this important fleet: its past involvement in the search for the *Hornet* and the *Enterprise* task forces between 18 and 25 April; its association with the "Alaskan Charts message" on the 27th; its location in the Northern Area from shortly after the 26th, when it was close to Soviet waters; and the introduction of a new callsign system throughout the fleet. The northern flavor of this evidence and a period of radio silence observed after 27 April strongly implied to communications analysts in the Pacific that the Second Fleet had returned to home waters. This conclusion may explain why the subject of this fleet did not arise in the daily bulletins. Since U.S. analysts did not actually know its whereabouts, however, internal reports also suggested that the fleet had an interest in further offensive action "possibly in the Aleutians."²⁶

On 2 May, to clarify the reports from Australia and Hawaii, communications associated with the Second Fleet yielded information that contradicted Melbourne's tentative conclusions of the day before. A translation published by OP-20-G suggested for the first time that Admiral Kondo had interests beyond the northern area that involved the Midway Strike Force.²⁷ A message originated by his Chief of Staff, Rear Admiral Kazutaka Shiraishi,²⁸ concerned the post-Midway Japanese plan to assemble portions of the Midway Strike and Occupation forces at Truk. Shiraishi advised the 5th Base Force, Saipan, which probably had a detachment at Truk, that an "A" Force and a Striking Force would be in Truk after 20 June. Significantly, the message was also addressed to COS 1st Air Fleet, Rear Admiral Ryunosuke Kusaka, and COS 4. Fifth Base Force was subordinate to the Fourth Fleet. Saipan, with its excellent airfields and harbors, was an important base for Admiral Inouye's Fourth Fleet.

Undoubtedly related to the 2 May message from Admiral Shiraishi was another message intercepted two days later. It contained an undated anchorage assignment at Truk for units of the Midway Strike Force and the Second Fleet. It was sent to Admiral Nagumo's 1st Air Fleet by an unidentified originator. Together the two messages created confusion in Washington and Hawaii. To Negat analysts, they suggested the existence of more than one Japanese Striking Force in the central Pacific. If this were true, it would be a matter of grave concern to the U.S. Pacific Fleet.²⁹ Washington did not immediately resolve this issue to its own satisfaction, but Negat warned that their rendezvous possibly heralded a "second phase to Midway, possibly involving another [*sic*] attempt to invade Hawaii."

Here, rather uncomfortably, matters stood until 8 May 1942, when Hypo correctly associated 1st Air Fleet elements with several important 2d Fleet elements, e.g., BatDiv 3 and CruDiv 8. Hypo warned correctly of the creation of a possible Strike Force organization under Vice Admiral Chuichi Nagumo, CINC 1st Air Fleet. According to Hypo's analysis, it consisted of the four carriers of CarDivs 1 and 2, CruDiv 8, two battleships from BatDiv 3, and other 2d Fleet elements.³⁰ All of these conclusions were correct, and such early recognition of the Midway Striking Force gave a major advantage to the planners in the U.S. Pacific Fleet.

Reinforcing the discovery by Hypo of a new Japanese Strike Force, on 9 May Melbourne intercepted and translated "1st Air Fleet Striking Force order No. 6." This message to the "Commander Destroyer Striking Force" ordered destroyer screens for a movement of many of the capital ships in the Striking Force. It confirmed beyond a doubt that the Japanese Navy had in fact created a new carrier Striking Force. A subsequent translation on the same day revealed that a major movement of this force was to occur on 21 May, when its battleships and carriers were to depart Sasebo.³¹ Layton and Rochefort confidently advised Admiral Nimitz that a combined 2d Fleet, 1st Air Fleet operation could be expected at the end of May.³²

This advice arrived in the two major headquarters to surprisingly different receptions. On the 12th both King and Nimitz recorded their views on the various scenarios reflected in Japanese communications. Nimitz stated in his Command Summary that the Japanese

would "attack Moresby when reinforced; occupy Ocean and Nauru starting 18 May (local); commence an operation May 21 with a force of about 3 BB, 2-4 CV and usual forces. The objective may be Oahu." Admiral King conversely published an assessment filled with concern for the safety of Admiral Halsey's Task Force 16, which at this time theoretically was within range of Admiral Inouye's air patrols. In addition to a recommendation that Halsey be withdrawn from the forward area at once, King also recommended that the air groups of both Task Forces 16 and 17 be operated from shore-based facilities east of Australia and in Hawaii.³³ Both messages revealed a serious level of confusion about Japanese intentions.

Japanese messages translated on the 13th obligingly provided clarification of Japanese intentions in the Hawaiian and Aleutian Islands and reduced American anxiety concerning a possible Japanese threat to the West Coast. The originator of this message was unknown, but its contents left little to the imagination of American naval officials:

From U/I: Request this ship be resupplied with the following charts: (Send them to the 4th Fleet at Saipan to hold for us.) 2002, 2011, 2012, 2013, 2015, 2016, 2018, 2020.³⁴

OP-20-G quickly supplied the identities for all charts except 2002, which was probably a garble:

2011-Niihau to Oahu; 2012-Oahu to Hawaii; 2013-Hawaii; 2015-Pearl Harbor; 2016-Oahu; 2018-Seward Anchorage and Wells Bay; 2020-Western Hawaii Group, Chart 2.³⁵

A "2nd Fleet Operations Order No. 22," intercepted and translated by both Hawaii and Melbourne, provided strong evidence that Admiral Kondo's Second Fleet also had interests in the Marianas. The translation outlined control of shore-based 11th Air Fleet units proceeding "to the Saipan-Guam area for the forthcoming campaign."³⁶

These translations produced an immediate change in the highly fluid views of Admiral King. On 14 May Admiral King revised his earlier and vastly different estimate of the situation published on 12 May and, for the second time, directed Admiral Nimitz to declare a state of "Fleet Opposed Invasion." (A similar order was published in March 1942 in reaction to the first "K Campaign.") Rather than again expressing his concern for the aircraft and ships of Task Forces 16 and 17 and calling for their effective dismantling, King cited four "possible future enemy actions now in preparation: 1) Attack Midway-Oahu line in force first week June; 2) Simultaneously attack the Aleutian Chain; 3) Occupy Ocean and Nauru about 17 May; 4) Reinforce New Britain/New Guinea and strike southeast any time between 25 May and 15 June."³⁷

When on the 14th Layton notified Admiral Nimitz that "the forces to be under the command of CINC 2 have begun to assemble in the vicinity of Saipan," he also mistakenly associated the activity with the K Campaign.³⁸ To Nimitz, whose view of the situation was not obscured by the confusion over the K campaign, this report meant that even an impending threat to Oahu, however ill-defined and that he had posed on the 12th, was still at a relatively safe distance.³⁹ Admiral Nimitz did, however, implement the King directive

and declared a state of "Fleet Opposed Invasion" for the Hawaiian and Aleutian Islands, including Midway.⁴⁰

Just as in March 1942, when Washington reacted so strongly to the first Japanese K Campaign, publication of this order gave Nimitz complete control of all military forces, including B17s, in the Hawaiian Islands. General Delos C. Emmons, Commander, U.S. Army Hawaii, who was not privy to Admiral Nimitz's intelligence, challenged Admiral Nimitz's decision to defend Midway rather than Oahu. To placate General Emmons, Admiral Nimitz assigned Captain James M. Steele, USN, to reassess all the supporting information developed by Rochefort and Layton and to "present the devil's argument" at every opportunity.⁴¹ For a time Captain Steele became a constant presence with Layton, but Nimitz was never presented with sufficient reason to change his decision.⁴² To the very end, however, General Emmons remained firm in his doubts despite the fact that Admiral Nimitz began to supply him with intelligence reports. On 25 May Emmons warned Nimitz that he was placing too much reliance on reports of Japanese intentions. Instead, he advised Nimitz to base his estimates on Japanese capabilities and look for the land-based aircraft in the Marianas to attack Oahu.⁴³ After the battle General Emmons apologized for doubting Nimitz' strategy and presented a "jeroboam" of cold champagne to him and his staff.⁴⁴

By 16 May both Admiral Nimitz and Admiral King were in almost total agreement concerning Japanese intentions toward Midway and the Aleutians.⁴⁵ The views shared by Nimitz and King were in sharp contrast to the confusion that reigned between OP-20-G and the COMINCH War Plans Staff under Admiral Richmond K. Turner. According to their internal correspondence and a 15 May message to CINCPAC, apparently originated by Turner, analysts in Washington believed that the strong enemy force deploying from Japan the last week in May 1942 was related to an offensive against northeast Australia, New Caledonia, and Fiji, starting between 15 and 20 June.⁴⁶

The confusion in OP-20-G and the War Plans Staff revealed by the 15 May message from Admiral King's headquarters was not limited to overlooking or ignoring the Japanese plans for Midway. According to the message for which a source within the generic address "COMINCH" cannot be identified, forces from the northern and the central Pacific campaigns were mistakenly mixed together. The message also incorrectly reported the existence of a second Strike Force by associating a force assembling in Saipan and scheduled to leave on 24 May with the carrier element of the Northern Strike Force. Its objective, according to Washington, was possibly to eliminate Midway or to divert U.S. forces from the South Pacific and Alaska. The same message noted that Howland and Baker might be objectives rather than Ocean and Nauru.⁴⁷ Reacting to the possible presence of two Japanese Striking Forces somewhere between Japan and Truk, Admiral King at this point prudently recalled all U.S. shipping to Pearl Harbor.⁴⁸

On 16 May, reacting to Japanese Fourth Fleet communications activity reported by the Pacific centers, Admiral Nimitz advised CTF 16 that the Japanese had "indefinitely postponed" their plan to attack Ocean and Nauru, and he ordered Halsey to return to Hawaii.⁴⁹ He also published his adjusted assessment of Japanese intentions,⁵⁰ concluding

that in the central and northern Pacific the Japanese would attack Midway and raid Oahu the first part of June. In addition, he speculated that the seaplane bombing raid of Oahu might be delayed until the full moon at the end of the month (probably meaning the end of May). He also stated that "unless the enemy is using radio deception on a grand scale, we have a fairly good idea of his intentions."⁵¹

Aware from the behavior of the Fourth Fleet that the Japanese had not given up on Moresby, Admiral Nimitz provided Washington his full appreciation of current Japanese intentions throughout the Pacific:

Present indications [are] that there may well be three separate and possibly simultaneous enemy offensives. One involving cruisers and carriers against the Aleutians, probably Dutch Harbor. Second against Port Moresby involving present forces that area. Probably reinforced third against Midway for which it is believed the enemies [sic] main striking force will be employed.

The message went on to indicate that his appreciation for the timing was uncertain but that the presence of Halsey in the south resulted in postponement of the Ocean and Nauru operations.⁵²

On 17 May Admiral King published a remarkably accurate assessment of the enemy's strength for the Midway and Aleutians operations: Midway attack force – four fast BB in BatDiv 3, CruDivs 4 and 8, CarDivs 1 and 2 plus possibly *Zuikaku*, at least two DesRons and a landing force; Unalaska attack force – CruDiv 7, CarDiv 3 (*Ryujo* and *Hosho*), at least two DesRons and troops. His estimate covered only those elements already identified in communications. It did not account for all the Japanese forces gathering in home waters, nor for all the geographic designators being used by the Japanese as apparent objectives. King concluded his message with two critical pieces of information: the first and only direct allusion to the forces constituting the Japanese Main Body – "Some indications that remainder of 1st Fleet may take up supporting position west of Midway" – and he identified Admiral Yamamoto's primary objective: to trap and destroy the U.S. Pacific Fleet.⁵³

Precise Japanese timing continued to elude both the analysts and the commanders. In another estimate, also published on 17 May, Admiral King provided his assessment of when the attack(s) would occur. Based purely on inspired guesswork, he stated there were strong indications that between 30 May and 10 June the enemy would attack the Midway-Hawaii line and would raid or even attempt to capture Unalaska.⁵⁴

This type of estimate was far too general even for planning purposes, and more precision was soon provided. On 18 May, within the framework of a ubiquitous 10 May request for weather information that may account for the seven-day delay in translation, Commander, CarDiv 1, Admiral Nagumo, revealed a fundamental detail of the Strike Force's attack plan. His message stated that "... since we plan to make attacks roughly from the northwest [?] from N minus 2 days until N day request you furnish us with weather reports three hours prior to the time of take-off on said days"⁵⁵ Two additional translations of possibly the same message from different originators were also

published the same day by Melbourne and Hawaii. They contained another vital detail: Japanese planes would be launched fifty miles northwest of AF!⁵⁶

These messages did not solve the timing problem completely, but, after weeks filled with uncertainty and concern that the right decisions were being made and executed, it is not difficult to appreciate Admiral Nimitz's reaction. On the same day, he immediately sent messages to CTF 16 (Halsey) and to CTF 17 (Fletcher) to expedite their return to Pearl Harbor, and he redirected submarine search activity off Midway to an area fifty miles northwest of the island.⁵⁷

On 19 May Layton drew together the recent COMINT from both Pacific centers into a masterful summary that identified the main objectives of the impending Japanese campaigns. He named Midway-Oahu and the Aleutians; isolated their rendezvous as Saipan and Ominato, respectively; and identified Midway and Dutch Harbor as specific Japanese objectives. The arrival of his report in Washington inadvertently coincided with the climax of a problem that had simmered for months between OP-20-G and Admiral Richmond K. Turner, chief of the Navy's Office of War Plans. The relationship, already far from harmonious, had deteriorated steadily since early March. At that time, newly formed OP-20-GI (Combat Intelligence) and OP-20-GZ (Translation) began to produce "current" intelligence reports based on the output of the Pacific centers and current translations after 13 March 1942, based on the work of OP-20-GY (Cryptanalysis). The final breakdown stemmed from a series of minor disagreements between the analysts in War Plans and their counterparts in OP-20-G concerning Japanese preparations for the Midway/Aleutians campaigns.

The available record of the dialog between War Plans and OP-20-G reveals a very active and sometimes acrimonious relationship, touching on virtually every Japanese Navy initiative between 14 March and 27 May 1942.⁵⁸ Disagreements were often so profound that the head of OP-20-G, Commander John R. Redman, frequently had to rewrite the intemperate comments of the analysts who prepared responses to the questions from Admiral Turner and his staff. The record, unfortunately, also reveals that analysts in both War Plans and Negat were often unaware of the decisions and actions emanating from both Admiral King and Admiral Nimitz, particularly during the critical period between 8 and 23 May. In addition, the record suggests that the analysts in OP-20-G and War Plans were so engrossed in their own activities that they sometimes overlooked vital information concerning the Imperial Fleet readily obtainable from translations from OP-20-GZ and the daily reports from the Pacific centers.

On 13 May, after the Japanese Fourth Fleet had broken off the Moresby campaign, for example, Admiral King cited several likely Japanese actions, including an attack on Midway and the Aleutians, when he directed Admiral Nimitz to declare a state of Fleet Opposed Invasion. Two days later, after the "Hawaiian charts" message was published, and after Nimitz had implemented the King order to declare an emergency, a memorandum from OP-20-G was passed to War Plans. It did not mention the dialog between King and Nimitz nor the implications of the Japanese Navy's interest in navigation charts for the area around Honolulu and the Aleutians. Responding to

questions from the War Plans staff, it focused on the much narrower views of War Plans regarding several ongoing and unrelated Japanese campaigns including the MO campaign. None of the items cited in the internal exchange contributed to or concerned in any way the current exchange of ideas and initiatives between Admirals King and Nimitz.⁵⁹

On about 20 May, a face-to-face confrontation occurred between Turner and Redman, in which Redman learned that Turner himself was seriously dissatisfied with certain aspects of the latest COMINT reports from both the Pacific and OP-20-G. Turner specifically accused both Negat and the Pacific centers of not resolving the distinction between the AF and K Campaigns, and for failing to perceive that CINC 5th Fleet was in fact merely a Sea Frontier Commander who was not in command of the units that passed through his area of responsibility.⁶⁰

At the end of the confrontation, Turner literally "directed" Redman to ensure that, unless the files showed evidence to the contrary, the COMINT centers in Washington, Hawaii, and Australia were all to "not comment in such a way as to indicate that Cinc 5th Fleet is to command any force now concentrating in Northern Empire Waters, but are to assume that Admiral Turner's views are correct."⁶¹ It is significant that throughout the entire record of the confrontation neither party referred to Midway. Instead, through 23 May they usually referred to an undefined and unlocated "AF" operation. Fortunately for the United States, Redman did not have the opportunity to implement Admiral Turner's 20 May directive.

Admiral Turner and his staff were also probably responsible for the fact that, between OP-20-G and the Pacific centers, a question vital to the success of U.S. plans remained unanswered in Washington. What was the identity of "AF," the acknowledged objective of the Japanese Strike Force? The original correlation of AF/Midway had been made by Corregidor on 7 March 1942. It was subsequently reaffirmed by Melbourne shortly after the center was activated on 20 March. Hawaii agreed with Melbourne on the identity of AF because of its position in the "A," or American digraphs in the Japanese designator system. Thus, among the Pacific centers there was no question that Midway was the objective of the Japanese Strike Force.

Admiral Nimitz, his intelligence advisors, and Admiral King agreed with the Pacific center analysts. However, the analysts in OP-20-G and probably the analysts in Turner's War Plans staff never fully subscribed to these shared convictions. Negat believed, as noted earlier, that AF was a communications not a geographic designator. Therefore, for a brief period between 15 and 20 or 21 May 1942, OP-20-G, and perhaps others in Washington – including War Plans – were apparently overwhelmed by misgivings over the identity of the designator AF. Some subscribed to Samoa, others to the U.S. West Coast, and some to the idea that AF, as a geographic designator, was actually Hawaii itself.⁶²

Though no direct evidence exists that the following episode actually occurred, Hypo was also aware of the problem. Between 15 and 21 May, so the story goes, someone in Hawaii decided upon a clever method to settle the identity of AF once and for all. Some

attribute the idea to the outspoken Rochefort, whose conviction was long-standing that Midway and AF were the same. The idea was to deceive the Japanese by faking a water shortage on Midway. With the permission of CINCPAC, who had to approve all deception projects, a message reportedly was sent to Midway on 18 or 19 May via the cable from Honolulu directing the station to send a radio message in the clear to the 14th Naval District complaining of a shortage of water.⁶³

This order was apparently carried out promptly and with gratifying results. On 22 May Melbourne published the following translation:

KIMIHI (Naval Intelligence Tokyo) – The AF (Midway) air unit sent following radio message to Comdt 14th District: "AK" on 20th. 'Refer this unit's report dated 19th, at the present time we have only enough water for two weeks. Please supply us immediately.' Note: Have requested 14th District check this message-if authentic it will confirm identity "AF" as Midway.⁶⁴

This message, regardless of its genesis, ultimately ended all controversy over the identity of AF and of the Japanese objective.⁶⁵

The period between 20 and 27 May 1942 was filled with heavy Japanese communications activity concerning preparations for the impending operations. On the 20th the center in Hawaii reported the appearance of tactical callsigns and exercise radio traffic in naval radio communications. These were the familiar signs of impending operational movements. Their appearance prompted Admiral Nimitz to accelerate his own preparations. The reported movements of slower Japanese vessels toward Ominato was clearly aimed at support of the Northern Force and prompted Nimitz to activate TF 8 under Admiral Robert A. Theobald. The movement of the Midway Occupation Force Transport Group under Rear Admiral Raizo Tanaka was also reported to Nimitz,

prompting him to issue the first of a series of situation estimates (on 20 22, 23, and 27 May). To the COMINT centers the first one was particularly noteworthy because it contained the following statement: "3. Our sole source of information . . . is RI and CI [i.e., communications intelligence]."⁶⁶



Rear Admiral Robert A. Theobald

The order activating Admiral Theobald was accompanied by a comprehensive survey of the Japanese Northern Force order of battle and a preliminary timetable. Curiously, Theobald chose to treat both this information and a subsequent refinement containing

more precise timing and a plan of attack as Japanese deception, and he refused to include it in his plans.⁶⁷

Though by no means a parallel case to Theobald's miscalculation, Melbourne made what was probably its most significant if not its only serious mistake of the entire Coral Sea/Midway campaign. Based on their analysis of communications activity and not on textual material, on 21 May the analysts at Melbourne incorrectly concluded that "Cinc Combined, while actively cooperating in directing operations in all areas, will not move to any particular area to assume direct command of operations."⁶⁸ This statement directly concerned Admiral Yamamoto's "Main Body" consisting of battleships, cruisers, destroyers, and a light carrier. This was a powerful covering force assigned to both the Midway and Aleutian campaigns, which, as noted by Admiral King on the 17th, was directly though distantly involved as support to both operations. Melbourne's ill-advised conclusion may in part explain why the subsequent movement of the 1st Fleet from home waters and its presence some 700 miles west of Midway was not detected before the battle was joined. Fortunately, the seeming contradiction between Negat and Hypo went unnoticed.⁶⁹

Admiral Nimitz's undiluted confidence in his communications intelligence organization and in his own strategic and tactical decisions was demonstrated once again during the building crisis in two messages he originated on 22 May; one was sent to Halsey and Fletcher, the other to General MacArthur. In his message to the American carriers, he ordered them to maintain "strict radio silence at all times," particularly among the aircraft "when coming in to land." The admonition was based on frequent reports from Hypo that the Japanese RI effort easily learned of carrier movements in and out of Pearl Harbor simply by monitoring air-ground radio chatter.⁷⁰ The warning seems to have had little practical effect on the task forces.

He also warned MacArthur that Japanese radio intelligence stations were intercepting air-to-ground radio contacts between Port Moresby and allied planes. He added that if these contacts were enciphered they were quickly and easily broken.⁷¹ MacArthur changed his codes immediately.⁷² This episode also indicated how closely Rochefort and Layton worked together. Both messages from the theater commanders preceded the official notification from Com 14 of their discovery that the Japanese were retransmitting Moresby-related air-ground traffic to nearby surface ships and submarines.⁷³

It is possible the Japanese success in exploiting American radio communications in the southwest Pacific inspired General MacArthur to recommend a brilliant deception scheme using radio communications. On 24 May he proposed that Hawaii, Melbourne, and two or three American naval vessels in the area practice radio deception on the Japanese by creating the impression that a task force had remained in the New Hebrides/Coral Sea area.⁷⁴ Nimitz, who by then knew that the British were not going to lend Admiral King the carrier he requested to support Admiral Leary,⁷⁵ enthusiastically approved the idea.⁷⁶ The seaplane tender *Tangier* (AV-8) and the heavy cruiser *Salt Lake City* (CA-25) were quickly tasked to steam around the Coral Sea exchanging carrier and intelligence traffic

with each other and certain shore stations.⁷⁷ Admiral Nimitz probably never learned the outcome of this charade. However, the results were all that could have been anticipated. Japanese communications analysts detected the spurious radio transmissions and reported to Admiral Yamamoto that while he and the Main Body were en route to Midway an American carrier task force remained in the Coral Sea.⁷⁸

Melbourne and Washington continued to publish translations that added to the developing mosaic. In the radio communications of an unidentified Base Force on 22 May, Melbourne discovered a message containing the word "Midway." The Japanese message requested the "aerial photographs of Midway (which were handed over to you)."⁷⁹ In a completely different vein, the center in Washington published a message from Admiral Nagumo to the "11 Air Force" [sic] on 24 May concerning the delivery of thirty-three probably ground-based aircraft to an unspecified location by the carriers of CarDivs 1 and 2 and one unidentified vessel. Based on the fact that the carriers called at no port until after the attack on Midway and the northern route followed to their destination virtually precluded a fly-off of any kind, Admiral Nimitz immediately deduced that these aircraft were destined to be the nucleus of a ground-based air unit located somewhere on the new perimeter.⁸⁰ The existence of these aircraft and their likely purpose was subsequently reflected in the version of CINCPAC Operations Plan 29-42 promulgated on 27 May 1942.⁸¹ Their subsequent loss was completely unnoted in accounts of the carrier losses.

Twenty-five May 1942 began with Hypo's discovery of the Japanese Date Cipher. The Americans now possessed the means to determine the missing final ingredient of the Japanese plans: when the attack would take place.⁸² Application of the new information to translations known to contain dates relevant to the forthcoming operation allowed Rochefort to predict that the Japanese attack on the Aleutians would occur on 3 June and on Midway on 4 June.⁸³ Despite objections from his own staff, Admiral Nimitz decided to base his final timetable on these dates.⁸⁴

Applying the date cipher to older traffic on the 25th, Melbourne also published a translation dated the 20th that alerted the Pacific Fleet to a major movement of combatants on the 22d. CruDiv 8 and one battleship of BatDiv 3, the *Kongo*, were scheduled to depart the Inland Sea to rendezvous with the *Kirishima*, another battleship in the same division.⁸⁵ CruDiv 8 and the *Kirishima* were destined to support the Midway Strike Force. The *Kongo* supported the Covering Group for the Midway Occupation Force. This deployment schedule conflicted slightly with the schedule in Fuchida. Fuchida recorded that the Midway Covering Group and the Strike Force left the Inland Sea after a final rehearsal on the 25th.

Operational activities in the Pacific began to accelerate very early on 26 May. TF 16 (*Hornet* and *Enterprise*) under Admiral Halsey returned to Pearl Harbor on the 26th to begin a whirlwind of preparations for battle.⁸⁶ In reaction to the earlier COMINT report of Japanese intentions to approach from that direction, the submarine *Gudgeon* was ordered to conduct a surface patrol northwest of Midway.⁸⁷ In addition, CINCPAC Bulletin No. 72 on the 26th carried the electrifying news to a wide audience including the commander of TF8, Admiral Theobald, and the other task force commanders, that the Japanese Northern

Force had begun to depart Ominato. In the Bulletin, Layton speculated that its probable destination was the western Aleutians.⁸⁸ Finally, Com 14 published the news late in the day that all Japanese carriers were probably at sea.⁸⁹

(Messages concerning communications security in the U.S. Pacific Fleet were exchanged with Admiral King on the 26th in the course of which Admiral Nimitz again stated how dependent on communications intelligence his operations were. "Generally speaking our present intelligence is mainly the decoding of 40 percent of the messages copied, and only 60 percent of possible messages are copied." At about this time Admiral King sent an equally candid assessment of COMINT to the Joint Chiefs of Staff. He attributed all of the Navy's progress in the Pacific to the success it was having in obtaining timely information from the Japanese naval codes. Without this information, he said, "disaster is probable."⁹⁰ (Ironically, within five days of Admiral Nimitz's testimonial, the worst fears of both headquarters became a reality when Admiral Nimitz's final estimate of the makeup of the Japanese Midway Force fell into the hands of a reporter for the *Chicago Tribune*, who published it in three major daily newspapers.)

Twenty-seven May was a momentous day in Hawaii, both in Headquarters CINCPAC and in the radio intelligence center. On the heels of TF 16, which had arrived the day before, the *Yorktown* finally limped into Pearl Harbor still showing the damage inflicted during the Coral Sea engagement.⁹¹ The good news was offset by bad news from the radio intelligence center: a new cipher had been introduced in the Japanese Navy General-Purpose Code that rendered unreadable the texts of almost all messages sent after the 27th.⁹²

Though the impact of the new cipher (Baker 9) was felt at once, intercept did not cease. Communications analysts at Hypo, with the aid of radio direction finding, were able to maintain their usual perspective of Combined Fleet activities including deployment of the Northern and Midway Strike Forces. The summary of communications activity published late on the 27th revealed how effective they could be even without readable messages. The carriers themselves, as well as the 1st Air Fleet, were silent on the 27th but received a message from Tokyo that was sent to a group of addressees correctly identified by Com 14 as the Japanese Strike Force. Seven weather ships were tentatively located northeast of Hawaii with the aid of radio direction finding. Each of the five destroyer squadrons associated with both Strike Forces, including the plane guards for the Midway Strike Force, were identified, located, and correctly associated with the element they supported. All major commands associated with both Strike Forces were either heard or identified as recipients of message traffic.⁹³

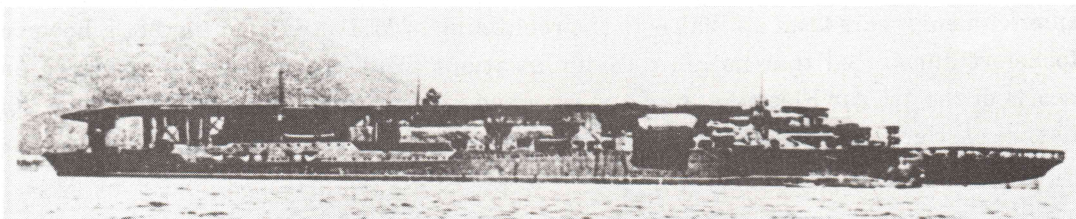
Earlier messages in the Baker 8 cipher, however, were available, readable, and highly valuable in discerning Japanese intentions. These included a 25 May message from CINC 5 that contained the tactical callsigns for the Northern Force, its Strike Force, and the Occupation Forces for "AQ" and "AO";⁹⁴ a vital 22 May message that stated that "heavy bomber force will advance to [Horomushiro] for a period of about 20 days beginning 29 May"; a new translation of the 26 May 2d Fleet message "Occupation Force Operations Order Number 8," which turned out to concern a "Kazuki Detachment" or "Ikki

Detachment." This unit was intended to "command the 2d Combined Landing force" and occupy Midway's "Eastern Island."⁹⁵ They also included a Combined Air Force message, probably also from 26 May, indicating the planned use of sixty "enemy engineers," i.e., American engineers then on Wake, in the rebuilding of Midway.⁹⁶ On the 28th, however, Rochefort announced that no radio communications were heard from the carriers and escorts of the 1st Air Fleet that day and repeated his warning published late on the 26th that the carriers were at sea.⁹⁷ (As already noted, they departed their anchorages in Japan beginning on the 27th in Japan and the 26th in Hawaii.)

The reports from Hypo and Melbourne produced several reactions in CINCPAC headquarters. Admiral Nimitz alerted the task forces that Strike Force deployments were under way;⁹⁸ dispatched TF 16, now commanded by Admiral Raymond A. Spruance, for Midway; ordered CTF 8 (Admiral Theobald) to maintain radio silence; warned Admiral Theobald that Intelligence believed that Japanese Aleutian forces included one group destined for Kiska and another possibly for Attu; and alerted Theobald that Japanese heavy bombers would be based at Horomushiro.⁹⁹ Ironically, Admiral Theobald, who had only just arrived in Kodiak, again did not believe the intelligence, all of which was provided by the RI centers in Melbourne and Hawaii, fearing it was a communications-inspired ruse to draw him westward.¹⁰⁰ He deployed his main force 400 miles south of his Kodiak base with the objective of preventing the Japanese Navy from getting between him and the eastern Aleutians and Alaska.¹⁰¹

On 29 May 1942, all the centers continued to analyze Japanese fleet communications patterns and to translate earlier messages in the Baker 8 cipher. These efforts continued to pay steady if uneven dividends. Negat reported the departure of Admiral Kondo's Covering Group from the Inland Sea¹⁰² and contributed a translation concerning American and British diplomats being exchanged.¹⁰³ Hypo translated messages concerning Japanese activities in the southwest Pacific that also were not directly related to the impending invasion of Midway. One interesting message in this group concerned captured communications personnel from Corregidor who, during "examination," revealed details of certain navy mainline and submarine communications.¹⁰⁴

Hypo also reported on current communications activity related to the forthcoming operations. Extremely active antisubmarine air patrols were detected in the northern area.¹⁰⁵ All task force commanders were alerted by American direction finding, which located three Japanese submarines in northern waters¹⁰⁶ and one west of Midway. The *Akagi* was noted breaking radio silence, although none of the carriers in the Midway Strike Force could be located.¹⁰⁷ All major forces except the First Air Fleet originated traffic on the 29th, CINC Combined being the most active,¹⁰⁸ five Northern Force DDs were noted continuing their movement from Sasebo to Ominato to Abukuma that had begun earlier.¹⁰⁹ Also on the 29th, COS 2 was noted sending a message to all forces under his command with information to the Strike Force and the Northern Force signifying that he was supporting both operations.



Japanese Submarine *Akagi*

Despite the evidence from COMINT that the Japanese Northern Force was now approaching its objective, Admiral Theobald had not originated a plan of operations by the 29th.¹¹⁰ In the absence of a plan from Theobald, but in receipt of Admiral Nimitz' message of the 28th outlining the probable Japanese plan of attack,¹¹¹ the commander of the Northwestern Sea Frontier asked CINCPAC if he should "evacuate white personnel from Attu and Kiska."¹¹² CINCPAC responded affirmatively,¹¹³ and CTF 8 (Theobald) was given the responsibility for conducting the evacuation.¹¹⁴ Understandably alarmed at the COMSEC implications of a successful Japanese attack on a base with communications facilities, the "Vice Chief of Naval Operations" (probably the Director of Naval Communications) sent a message to all bases in Alaska to "burn all U.S. Naval and combined cryptographic aids except those currently effective . . ."¹¹⁵ Unknown to anyone in Washington, the overall situation concerning American communications security was even worse than suspected.

Far from enjoying total anonymity, American preparations to defend Midway were on the verge of discovery. Japanese traffic analysts reported that 72 of 180 messages from Pearl Harbor were "Urgent." To them this extraordinary increase in high-precedence messages in Hawaiian and Alaskan waters suggested that a U.S. task force was at sea.¹¹⁶ Their suspicions were supported by a Wake report that U.S. patrol planes were operating far from Midway.¹¹⁷ In addition, a COMINT detachment traveling with Admiral Yamamoto reported that a U.S. submarine just ahead of the Transport Group that had left Saipan on the 28th had sent a long urgent message to Midway on the 30th suggesting that the transports had been discovered.¹¹⁸ Incredibly, all of the discoveries concerning U.S. activities made by Japanese COMINT in Tokyo or in the *Yamato* were withheld from the Midway Strike Force by Admiral Yamamoto. They were not reported to these key subordinates either because he assumed they had heard the Tokyo broadcasts or because he refused to break the radio silence he ordered when they departed home waters.¹¹⁹

On 30 May 1942, the *Yorktown* (TF 17) slipped out of Pearl Harbor probably detected by the COMINT detachment on the *Yamato*, but, in an equally bizarre leap of logic, this fact

too went unreported to the rest of the Strike Force because of radio silence restrictions.¹²⁰ Although the location of the Japanese Strike Force was unknown, except that it was "at sea," the U.S. Pacific Fleet carrier task forces sped on their separate ways to positions near Midway that were dictated by information provided by COMINT.¹²¹

Each center continued to search feverishly for earlier readable messages that would contribute to CINCPAC's decision-making capability, but, as the supply of messages grew smaller, their efforts met with less and less success. The site in Melbourne found an important message dated the 27th that contained the future deployment schedule for a unit of heavy bombers. Ten Type 1 heavy bombers from Misawa Air based at Kisarazu were scheduled to depart for Wake in a three-stage move beginning on 1 June and ending on the 3d. This deployment would place them within range of Midway in plenty of time to participate in any naval action beginning on the 7th.¹²² Moreover, should the Japanese succeed in seizing Midway, these bombers represented a potential threat to Hawaii. Nimitz reacted to this information by issuing a modification to his OP Plan.¹²³ Negat, through analysis of communications activity, confirmed once again that the carrier *Ryujo* was at sea with the Northern Forces and reported that the commander 6 AAF was probably aboard the *Akagi*, thus explaining the thirty-three land-based aircraft aboard the carriers in the Strike Force.¹²⁴

Searching through messages sent prior to introduction of the new cipher, the analysts at Hypo also made the important discovery on 31 May 1942 that fighter pilots from CarDiv 5 carrier *Zuikaku* were transferred to a probable Northern Force unit leaving Ominato on the 26th.¹²⁵ This discovery completely ruled out the possibility that the *Zuikaku* could be called upon to support either the Aleutian or the Midway operation. They also found a message of the 22d probably from Admiral Nagumo, CINC 1st Air Fleet, addressed to all four carriers in CarDivs 1 and 2, CruDiv 8 and a battleship in BatDiv 3. All were called to a conference aboard the *Akagi* on the 26th, which meant that all were still in port at that time – an important insight into the Strike Force's schedule.¹²⁶ With the aid of direction finding, Hypo again located the weather ships detected earlier. New data now placed them on the 155E line stretching from Kamchatka to below 25N.¹²⁷

Admiral Nimitz's operation plan estimated that the attack on the Aleutians would probably come on 3 June. With this in mind, a miniclimax began at Fort Richardson, near Anchorage, part of the Alaska Defense Command, when at 1920Z on 2 June the commander reported Japanese carrier-based planes "less than 400 miles south of Kiska." The Commander, Alaskan Section, to whom this report was addressed, incorrectly assumed the information came from an "RDF fix."¹²⁸ This report supplemented Bulletin Number 79, already sent to the task forces, which contained the news that a navy patrol plane had made contact with Japanese aircraft 560 miles from Midway at 2140Z on 1 June.¹²⁹

Another highlight of the events of 2 June was the appearance of "unusual enemy radio activity on a large scale" west and north of the Dutch Harbor radio direction finding site. Dutch Harbor also reported bearings of 320 and 034 degrees. These bearings were probably related to weather-reporting *Marus*, which the station could not ordinarily

hear.¹³⁰ The same weather-reporting ships extending from Kamchatka to 24N on the 155E line were again recorded by Com 14 in their summary for 2 June 1942.¹³¹

Com 14 and the center in Melbourne both enlarged on the earlier evidence that Japanese bombers from up to possibly three Air Attack Forces were being relocated to positions in the Marshalls and to Wake,¹³² where they posed a threat to Midway's defenders. As noted earlier, these aircraft potentially represented a large ground-based bomber unit on Midway that would be a serious threat to Hawaii if the Japanese seized Midway. Melbourne's analysis of air activity in the Marshalls provided an important insight into the whereabouts of the Japanese Occupation Forces. They concluded that heavier than normal air reconnaissance, coupled with unusually heavy message traffic to a destroyer unit in the same area, meant that the Occupation Force was approaching the Marshalls.¹³³

Older traffic again paid dividends when three messages sent in the previous cipher, Baker 8, were intercepted between 31 May and 2 June. The brief but readable contents of two of the messages were inconsequential, but the third, intercepted on 2 June, concerned casualties on an unidentified carrier. One of the code groups represented a lost carrier, the name of which ended with *kaku*. Melbourne analysts reasoned that, since the two carriers of CarDiv 5, *Shokaku* and *Zuikaku* were still afloat, the lost vessel must be *Ryuukaku*. Clearly, American cryptanalysts were having trouble with certain code group meanings within the General-Purpose Code. They had not yet verified the identity of the Japanese carrier (*Shoho*) sunk on the first day of the Battle of the Coral Sea almost a month before.¹³⁴

Negat did not publish any product related to the forthcoming operations on 2 June 1942. Citing ONI estimates, however, Admiral King's headquarters issued a summary of "estimated changes Orange Fleet" that contained serious errors. Most significant were two errors pertaining to the Japanese Main Body under Admiral Yamamoto and to the Strike Force under Admiral Nagumo. ONI incorrectly estimated that BatDivs 2 and 1, CarDiv 4, and DesRon 3, parts of the Main Body, were still in the "Bonins-home waters area." In fact, on the following day this force was approaching the western edge of the occluded front west and northwest of Midway.¹³⁵ Perhaps more importantly, ONI chose this moment to report the presence of a fifth carrier, and identified that carrier as the *Zuikaku*.¹³⁶ Fortunately, Admiral Nimitz and his intelligence staff had confidence in the information being generated by the centers in the Pacific, and this ONI estimate was not acted upon or repeated to the task forces off Midway.

As predicted by Hypo, the Japanese offensive against the Aleutians began on 3 June: Japanese carrier aircraft attacked Dutch Harbor at 1555Z/0655 locally.¹³⁷ A little over two hours after Admiral Nimitz repeated his second alert, while the Japanese renewed their attack on Dutch Harbor, Midway notified him that the Japanese "Main Body" was sighted at 2100Z by a patrol plane on a bearing of 261 degrees and a distance of 700 miles from Midway.¹³⁸ Eighteen minutes later, apparently as a result of Hawaii's receipt of the report of another patrol plane, CINCPAC learned that a second group of ships had been sighted. The second, a smaller group of warships and cargo vessels, was located 470 miles from Midway. Nimitz immediately forwarded this information to the task force commanders, to Admiral King, and to General Emmons, COMGENHAWDEPT.¹³⁹ Two hastily prepared clarifications were sent later that stated his belief that the forces sighted were the "attack and occupation force," the most distant consisting of "11 ships course 090 speed 19." The Strike Force was "expected to be separated."¹⁴⁰ All of this information and the roles of CINC 5, CINC 1st Air Fleet, and CINC 2 were included in CINCPAC's Bulletin Number 81 sent in the late afternoon of 3 June.¹⁴¹

Com 14's daily report was released in mid-afternoon on 3 June several hours before the Alaska operations began. It was a timely summary of the knowledge gained from translations and other analysis. Most of it quickly found its way to the task forces. Hypo isolated those units "interested in operations against U.S. possessions." Their report correctly if too briefly identified Admiral Yamamoto, CINC Combined, as "in general charge." The actual role of the First Fleet as "Main Body" of the two operations continued to elude analysis. Hypo reported that Admiral Yamamoto, the commander of this fleet, "appeared only marginally interested in the current operations. All the other major commanders were correctly identified: Admiral Kondo, CINC 2, whose battleships, cruisers, and destroyers supported both the Strike and Occupation Forces, was characterized as "in command of invasion forces in Midway area"; CINC First Air Fleet as "in command of Striking Forces against Central Pacific bases; and CINC Fifth Fleet as "in command of invasion and Striking Forces in North."¹⁴²

Com 14's analysis was hampered by the fact that no traffic was originated by any of the Japanese commanders after either 28 or 29 May 1942. Since the entire Combined Fleet observed radio silence and a new cipher was introduced in JN 25 at the same time, analysts were left with virtually nothing to analyze except communications contacts initiated by shore-based radio stations, and old messages to and from ships at sea in the Baker 8 cipher. In the latter category was an errant transmission from the cruiser *Nagara* revealing her role as flagship of the Strike Force's plane guard destroyers, a fact that was immediately conveyed to the CTFs.¹⁴³ Shore-station communications, however, remained active. Though messages originated by shore stations could not be read, their contacts revealed that Wake was not a stopping-off place for either the Strike Force or the Invasion Force.

Among the many topics demanding Admiral Nimitz's attention at this time was the need to ensure an adequate flow of information into his headquarters during the forthcoming battles. Recalling the paucity of information available during the Battle of the Coral Sea and mindful that certain matters concerning enemy losses in that battle were still not resolved, Admiral Nimitz sent a quick reminder to Midway and to CTFs 4, 7, 9, 16, and 17: "Successful and timely employment Striking Forces . . . almost wholly dependent on reliable combat intelligence with emphasis on enemy composition, position and condition. Damage to enemy must be carefully evaluated and reasonably certain results be reported. Reports must get through promptly."¹⁴⁴ Unfortunately, the record of 4 June suggests that his guidance could not be followed by those he most depended upon, the carriers and the B17s. Obviously full of confidence in his intelligence and his plans for the next day's action, however, Admiral Nimitz also sent this encouraging message to Midway and all task force commanders at the eleventh hour on 3 June: "The situation is developing as expected. Carriers our most important objective should soon be located. Tomorrow may be the day you can give them the works."¹⁴⁵

(The next day, 5 June 1942, in apparent response to the Nimitz message cited above, Washington directed the use of new terminology to describe communications intelligence and new cryptographic systems for its transmittal. The abbreviations "DI" for decryption intelligence, "TI" for traffic intelligence, and "RI" for radio intelligence were now mandated. Any message or report containing DI was to be transmitted in the COPEK system. Information from TI alone was to be sent in the CETYH system. Both systems were apparently available to all COMB addressees since there was no immediate change in distribution.¹⁴⁶ It is impossible to determine if this guidance was a help or a hindrance. It is certain, however, that, during the battle, it was ignored by everyone.)

Just after midnight on the morning of 4 June, Nimitz realized that he had not yet advised the task forces how far the "Main Body" was from Midway. Accordingly, he repeated messages sent earlier concerning its course and speed and included the information that this force was now "574 miles" from Midway.¹⁴⁷ All remained quiet until shortly after dawn when at 1804Z/0604 local time on Midway on 4 June, a reconnaissance plane from Midway spotted two Japanese carriers and their escorts and transmitted an electrifying report that was immediately repeated by Admiral Nimitz to his task forces, to Admiral King, and to General Emmons: "Many planes heading Midway from 320 distant 150 miles!"¹⁴⁸ Less than half an hour later, at 1835Z, Midway was struck by Japanese carrier aircraft.¹⁴⁹ History does not provide an explanation of why the Japanese chose to launch aircraft 150 rather than 50 miles from their objective. It is possible that the original translation was somehow flawed. The flaw could have been in any of several places, for example, the preparation, transmittal, or intercept of the text of the message, or in an incorrect code group meaning. All of this mattered very little on 4 June, however, when the Japanese carrier aircraft were spotted on their way to strike Midway.

Of the more than 200 units of the Japanese Combined Fleet deployed in the Alaska and Midway operations, no fewer than 129 were either warships (113) or submarines (16). At Midway, however, primarily because of the requirements of their complex plan and

their losses in the Coral Sea, the Japanese could actually produce but 4 carriers, 17 escorts, 229 aircraft, and 17 seaplanes. The remaining Japanese vessels and aircraft were either committed to the Northern operation or were too far away to support the carriers.¹⁵⁰

Compared to the onrushing Japanese Strike and Occupation Forces, the United States Navy was able to muster only seventy-three ships (forty-seven warships and twenty-six submarines). However, the United States was able to concentrate its forces and produce at Midway a slight advantage where it counted the most, at the scene of the battle. The United States had 3 carriers and 22 escorts at sea, 234 aircraft afloat, and 110 at Midway. All of these vessels and aircraft, as well as a few of the submarines, were on the scene at Midway on the morning of 4 June 1942.

In addition, Admiral Nimitz and his task force commanders had other less tangible but invaluable advantages as well: advance knowledge of the identity of Japanese objectives; virtually the entire Japanese Midway and Aleutian Strike Forces order of battle; the organization of the Midway forces, i.e., Striking Force, Occupation Force, Invasion Force, etc.; the preliminary and final timetables of the Midway and Aleutian Striking Forces; the general direction from which each force would approach Midway; and the Midway Striking Force's plan of attack. All of this information was supplied by communications intelligence in time to influence decisively the provisions of Admiral Nimitz's Operations Plan 29-42.

As foretold by Rochefort and Layton, the Battle of Midway occurred three days before Admiral Yamamoto planned to assault the island with his landing forces. The Marines and sailors in their prepared positions on Midway, the Navy and Marine Corps flyers on Midway, the submarines in Task Force 4, the patrol aircraft in Task Force 7, the surface patrols in Task Force 9, the B17s in the 7th Bombing Command, and the carriers of Task Forces 16 and 17 all were ready for the fight. They were ready because Admiral Nimitz was able to position them in the relative certainty that the attacking Japanese warships and carriers would be where COMINT had predicted, at the day and time COMINT had provided.

In the absence of Japanese radio communications from the ships approaching Midway on 4 June, Hypo reported to Admiral Nimitz how they had disposed of their intercept resources to deal with the crisis. Watches were doubled under a "Condition 1" at the intercept station on Oahu,¹⁵¹ and a combination radio direction finding and intercept facility was temporarily established on Midway. Intercepted traffic increased accordingly but not from the onrushing Japanese task forces. Hypo concluded that "excellent radio silence is being maintained despite the reported attacks on them." Thanks to the additional direction finding dispositions on Midway, as well as the reports received from naval aircraft of all types and from the army bombers operating from Hawaii and Midway, Admiral Nimitz was nevertheless in an excellent position not only to keep track of events but actually to control the movements of his own forces in relation to the attacking Japanese. This situation was in sharp contrast to the Battle of Coral Sea only a few weeks before, when CINCPAC was virtually blind to unfolding events.

When radio silence was finally broken by the attacking Japanese at about 1200 Midway local time, their frequencies were immediately intercepted and bearings reported probably by the temporary station at Midway.¹⁵² Except for encoded submarine communications, radio traffic consisted largely of plain language air-to-ground exchanges between carrier aircraft and the carriers that ended when the carriers themselves were lost. This information became part of an immense body of data concerning American efforts to learn the locations of the several Japanese task forces involved in the battle.

Admiral Nimitz's appreciation for the magnitude of his victory came gradually from visual observations and not from COMINT. Visual observations, however, were rife with ambiguous directional and ship identification information. More than once CINCPAC pleaded for more precision, particularly in those reports concerning the Japanese carriers.¹⁵³ In the absence of Japanese carrier communications, it was finally from visual reports that he learned in mid-afternoon of the 4th that Admiral Nagumo had probably lost the four carriers of his Strike Force.¹⁵⁴ Precise word of Nagumo's loss did come from COMINT, however, but not until 6 June when Hypo reported that Admiral Nagumo "appeared aboard the heavy cruiser *Nagara* sometime this morning, apparently having lost his flagship,"¹⁵⁵ and Melbourne reported that the Chief of Staff, 1st Air Fleet, was also addressed aboard *Nagara*.¹⁵⁶

As dawn approached on the morning of 5 June, Midway itself was safe. At midnight the night before, Admiral Nimitz had sent his heartfelt congratulations in a message to the task force commanders:

You who participated in the Battle of Midway today have written a glorious page in our history. I am proud to be associated with you. I estimate that another day of all out effort on your part will complete the defeat of the enemy.

That morning there was a growing but not universal consensus that the Japanese were hurriedly leaving the area. At one point during the morning of the 5th, CINCPAC originated a message to both TF 16 and 17, to Midway by cable, and to COMINCH, that the Japanese "will attempt assault and occupation Midway regardless past losses."¹⁵⁷ In either case, the task of finding the enemy and inflicting still further punishment was preeminent. No one in CINCPAC headquarters was aware that Admiral Yamamoto had postponed part of the Northern Force's operations and temporarily diverted both the Second Strike Force and the Covering Group to assist Admiral Nagumo in his extremity. They were aware, however, of a report from Melbourne on the 5th that stated that CarDiv 3 "shows slight indication that unit may proceed southward to join forces in Midway area." Fortunately for the American cause, Admiral Yamamoto vacillated for several hours before deciding to cancel his orders and restore the forces diverted from the northern area.¹⁵⁸

In sharp contrast to the voluminous reports from Hypo and his intelligence staff, a more truncated view of events was recorded by the CINCPAC War Plans division. Their daily report to CINCPAC sheds an interesting light on the treatment of information obtained from intelligence sources. While adding nothing positive to the general body of knowledge, their efforts are of interest because they were recorded in the CINCPAC War

Diary; they again demonstrate how, as in Washington, a war plans staff group in a major headquarters experienced difficulty in communicating with its leadership. In the CINCPAC War Diary for 5 June, War Plans summarized the Japanese Order of Battle of the Strike and Occupation Forces only and the results of the battle of 4 June on both sides. Their report did not record losses of a fourth Japanese carrier or the *Yorktown*, though by 050335Z (041635 Hawaiian War Time) CINCPAC knew of both the Japanese losses and the condition of the *Yorktown*. The summary ended by documenting the third air attack on Dutch Harbor and the sighting reports of two CVs southwest of that port, information probably received from Admiral Theobald's representative.¹⁵⁹

On 6 June, Hypo was aware of and quickly reported the implications of the fact that the flag of the 1st Air Fleet, which was a recognizable communications entity, had moved from the *Akagi* to the cruiser *Nagara*. Analysts at Hypo also reported on the 6th that "at 1710 on 5 June CINC Combined began sending tactical traffic thus breaking his silence that began 28 May." Other significant items in COMINT reports for 6 June included the fact that 4AAF was prepared to provide air cover to all retiring elements; a call for CarDiv 5 probably to send the *Zuikaku* to the area; reflections of a U.S. air attack on Japanese cruisers, possibly the *Mogami* and the *Mikumo*; the fact that no carriers had been heard in the Midway area for twenty-four hours; and the startling revelation from radio direction finding that Admiral Yamamoto himself was in the North Pacific possibly in company with two divisions of battleships. This report represented Hypo's discovery of the Japanese Main Body.¹⁶⁰

In a War Diary entry for the 6th, War Plans summarized the actions of the 4th and 5th. The Japanese were described as "retiring" as the U.S. search continued. The assessment of Japanese losses did not reflect the by then well-known fact that all four carriers were lost: two CV lost; two CV damaged; two BB damaged; two CA damaged; two AP damaged; and all aircraft either lost or badly damaged. Concerning the *Yorktown*, which on the 6th was struck by two torpedoes fired by the Japanese submarine I168,¹⁶¹ the War Plans entry noted only that attempts at salvage (from bomb damaged inflicted on the 4th) continued. Finally, the entry also noted that Dutch Harbor experienced its fourth air attack.¹⁶²

Admiral Spruance decided that the Battle of Midway ended on 8 June 1942.¹⁶³ COMINT for 7 and 8 June chronicled the fact that the Japanese were withdrawing in two echelons. One group moved southwest toward Saipan under the protection of the 4AAF and the other, which included Admiral Yamamoto, was withdrawing to the northwest with air support from CarDiv 3.¹⁶⁴ All activity was conducted under the direction of Admiral Yamamoto, who was now personally directing the final phases of his Midway operation. Routing of a message for CINC 1st Air Fleet from Ominato via the carrier *Ryujo* suggested to Hypo that possibly the admiral aboard this carrier from CarDiv 3, Rear Admiral Kakuji Kakuta, was the new senior officer in the 1st Air Fleet. Subsequent communications activity was to negate this suggestion by indicating that Admiral Nagumo was in fact still aboard the *Nagara*.¹⁶⁵ Still sensitive to the fact that a missing Japanese carrier was a potential problem, Layton again sounded the alarm that the carrier *Zuikaku* could not be

located. His report suggested that it may have been joining the forces withdrawing from Midway. Layton also reported that COMINT indicated no CVs remained among forces that attacked Midway.¹⁶⁶

The disparity between current events and War Plans reporting continued for another day. An entry in CINCPAC's War Diary by War Plans on the 7th suggested either that the entry was written before the COMINT report became available or that War Plans analysts were unwilling to accept information from that source. Instead of reporting that all four Japanese carriers had been sunk by American flyers, the entry recorded "incomplete reports" from army bombers and from TF 16 that a possible fourth Japanese CV had been sunk. In the Aleutians, it reported contact with the Japanese was being maintained by PBVs but "no effective attacks by bombers or torpedoes." There was no reflection of the status of the *Yorktown*, which sank at 0501Z on 7 June 1942.¹⁶⁷

By 8 June COMINT from both Melbourne and Hawaii was able to report that the withdrawing Japanese occupation forces under Admiral Kondo appeared to be headed for Saipan. Radio direction finding placed CINC Combined almost due west from Midway, and the remnants of the Strike Force appeared to be heading toward Japan.¹⁶⁸ Layton's report for the day once again warned that the *Zuikaku* appeared to be active and might be en route to join the withdrawing forces.¹⁶⁹ Hypo confided to its War Diary that the Japanese in Tokyo had "commenced radio deception and were attempting to give the impression that a large fleet is maneuvering." In its daily report for the 8th, Hypo noted that tactical calls for up to twelve tactical units were traced to Tokyo through the "sloppy communications practices" of the Tokyo operator and DF.¹⁷⁰ The 8th was the final day that the CINCPAC War Diary contained any information from War Plans concerning either Midway or the Aleutians. It recorded that the enemy continued to withdraw from Midway and that bad weather in the Aleutians hindered operations. Though the war continued in the Aleutians for several months, the Battle of Midway thus had three endings: on the 6th when Admiral Spruance turned away from his pursuit of the retreating Japanese; on the 7th when Admiral Fletcher's flagship, the *Yorktown*, finally sank beneath the waves; and for CINCPAC, on the 8th, when his diary no longer reflected an interest in the defeated Japanese forces.

CONCLUSIONS

After the battles of Coral Sea, Midway, and the Aleutians, the invaluable contributions made by communications intelligence were recognized by senior naval officials in Washington and Honolulu. In their words, communications intelligence had given the United States a "priceless advantage" over the Japanese.¹⁷¹ In few battles before or since would the navy possess an enemy's order of battle, their plan of attack, and their timetable, all of which had been provided to the naval high command by the communications intelligence units in Hawaii and Australia under the direction of Commander Joseph J. Rochefort and Lieutenant Rudolph Fabian, respectively.

With their performance during this period, both centers reclaimed the synergism that had marked their efforts before Pearl Harbor. There is no doubt that, had he lived to receive the Distinguished Service Medal – that was eventually posthumously awarded by the secretary of the navy in 1986 for his efforts to support CINCPAC prior to Midway – Commander Rochefort would have said that the medal truly belonged to the entire communications intelligence effort in the Pacific.¹⁷² (Fabian too was recommended for a DSM by MacArthur. Like Rochefort's, it too was not approved.)

On the eve of each of the battles fought in May and June 1942, Japanese communications security attempted to prevent U.S. monitors from penetrating the navy's intentions. It was not until the end of May, however, that radio silence effectively eliminated access by Hypo, Melbourne, and Washington to even those few messages related to the impending operations that were exchanged outside the confines of a new cipher and a new call sign system. Fortunately, the Japanese efforts to protect their secrets came too late to prevent what the world now knows was a major U.S. intelligence achievement.

Armed with the support of excellent communications intelligence and of his superiors in Washington, CINCPAC was able to satisfy all three of Clausewitz's "principles of warfare": decision, concentration, and offensive action. Prior to the invasion of Port Moresby, his fast carrier task forces successfully turned aside the Japanese strike force, virtually eliminated the effectiveness of Carrier Division Five originally scheduled to participate in the Midway operation, and forced postponement of the Japanese strikes on Ocean and Nauru by the judicious placement of CTF 16 when it was certain that the carriers *Hornet* and *Enterprise* would be spotted by Japanese patrols.

The same support from communications intelligence also allowed CINCPAC to deploy submarines, ships, B17s, B26s, fighters and observation planes to defend Midway and the Aleutians. By knowing the approximate dates for the planned attacks on the Aleutians and Midway, CINCPAC successfully disengaged his carrier task forces from the South Pacific after Coral Sea without being observed; he successfully redeployed them precisely where they could surprise the unsuspecting Japanese Strike Forces.

Without doubt these were major contributions to a truly decisive American victory, a victory of the magnitude of Salamis in 480 B.C. and Jutland in 1915. As a result of the Battle of Midway, the U.S. Pacific Fleet permanently frustrated all Japanese ambitions to establish a defensive perimeter anchored east of the Marshalls. Most importantly, however, the victory exposed to U.S. Navy planners Japan's incapability to wage effective carrier warfare in the central Pacific. Amidst its unrivaled success, however, this story of the contribution of communications intelligence is not quite complete.

Of the mobile detachments on the *Lexington*, the *Yorktown*, and the *Enterprise*, which accompanied the U.S. task forces (the *Hornet* had no detachment at Midway), we know in detail from the postaction recollections of Captain Forrest Biard, USN (ret) – who served under Admiral Fletcher, CTF 17, on the *Yorktown* – the type of contribution probably made to the commanders' tactical decision-making process during Coral Sea. At Midway,

however, we know only that they "provided valuable information after contact was made, through interception of Japanese plain language reports."¹⁷³ Thus until survivors reveal the detailed contributions made by communications intelligence to the tactical decisions of Admirals Fletcher and Spruance, CTF 17 and 16, respectively, the COMINT chronicle will be missing that part of the story. (Admiral Fullenwider, who supported Admiral Fletcher, is dead. Admiral Spruance was supported by a COMINT detachment for which the linguist was Captain Gilven Slonim, USN (ret). On 16 May 1989, Slonim advised the author that he was preparing a book about his experiences in the "RI" detachments that he plans to have published "in time for the 50th anniversary of the Battle of Midway.")

EPILOGUE

The Battle of Midway continued long after the combatants retired. Because of the confusion that surrounded the nascent and relatively unfamiliar U.S. Navy policies governing secrecy and need to know in 1942, the Battle of Midway was refought in the newspapers and courthouses of three major U.S. cities – New York, Chicago, and Washington – for several weeks after the battle actually ended. At issue was how the Navy knew of Japanese plans, how that knowledge came into the possession of a newspaper reporter, and how the government should handle a serious security violation. In the end no one was ever formally punished for revealing to the public the role communications intelligence played in the Japanese defeat. Whether the Japanese ever discovered that U.S. cryptologists had successfully penetrated their most secret operational code, or even suspected the magnitude of the warning provided by COMINT, remains a matter of conjecture to this day. At the time, however, officials within OP-20-G were certain that subsequent almost draconian corrections in Japanese communications procedures and cryptography were traceable directly to the following events.

On 17 May 1942, the survivors of the *Lexington* were en route to San Diego and San Francisco aboard the USS *Barnett* and the USS *Elliot*. (One account said that Admiral Fitch and Captain Sherman were aboard the transport *Chester*.) Anticipating their arrival in the United States, CINCPAC sent the following message to Admiral Fletcher, CTF 17, with information copies to COMINCH and the Commandants of the 11th and 12th Naval Districts:

It is imperative that all survivors Coral Sea action being returned Mainland be instructed that they are to refrain from any mention of the action upon their arrival west coast port. Com11 is requested berth transports where debarkation can be conducted without contact with newsmen. All personnel will probably require reoutfitting. There will be no publicity regarding this matter until Navy Department release. *Barnett* and *Elliot* will stop at San Diego to discharge excess personnel en route San Francisco.¹⁷⁴

Despite these precautions by CINCPAC, events aboard the *Barnett* resulted in even more damaging revelations than those CINCPAC had hoped to prevent. (In ancillary actions, CINCPAC learned that medical reports filed in Navy Bureau of Medicine channels revealed the status of American carriers after the battle. In a hasty message on 3 June 1942,

CINCPAC notified COMINCH and requested immediate action to suppress the errant reports.¹⁷⁵ At 2050 on 8 June 1942, COMINCH sent the following message to CINCPAC:

Contents of your 311221 May were published almost verbatim in several newspapers yesterday. Article originated with correspondent Stanley Johnson [sic] embarked on [USS] *Barnett* until June 2d. While your despatch was addressed Task Force Commanders it was sent in channel available to nearly all ships which emphasizes need of care in using channels para. Cominch investigating on *Barnett* and at San Diego.¹⁷⁶

CINCPAC's message of 311221 May contained his final appreciation of the Japanese order of battle prior to Midway.

True to his word, COMINCH immediately convened several formal inquiry panels, which began gathering depositions from witnesses. The panels inquired into the circumstances aboard the *Barnett*, which, in addition to most of the crew, carried the executive officer of the *Lexington*, Commander Morton T. Seligman, and a newspaper correspondent, Mr. Stanley Johnston, back to the United States, and in Chicago in the headquarters Colonel R.R. McCormick's newspaper, the *Chicago Tribune*, where the story had originated.¹⁷⁷ According to Admiral King's biographer, Thomas B. Buell in *Master of Seapower*, Admiral King "was in a white fury at his headquarters while his staff frantically tried to discover the source of the leak."

By 11 June all of the principals had been interviewed. Those aboard the *Barnett* were interviewed more than once. Out of this work emerged a very unpleasant picture of official neglect and confusion concerning the safeguarding of communications intelligence both on the *Barnett* and in the newspapers. Because of the perception that newsmen accompanying U.S. forces were sworn to secrecy, indictments of the principal employees of the *Chicago Tribune* were sought on 9 June, even before the inquiries were completed. They were returned on 7 July by a Chicago grand jury. At this point serious snags appeared at every turn, and the matter lay in the hands of the grand jury and a special prosecutor for several weeks while the navy added depositions to a record that increasingly showed that Johnston, a British subject, had, with the help or negligence of others, betrayed the trust placed in him.

While many in the navy focused on finding a suitable punishment for Johnston, COMINCH issued another memorandum on 20 June 1942 similar to those he had originated in March and April. It was sent to CINCLANT, CINCPAC, and CDR-SWPACFORCE bearing the subject "Control of Dissemination and Use of Radio Intelligence." Within the navy this would prove to be the only remedial action to come out of the Johnston case.¹⁷⁸

On 24 June the New York newspaper *PM* published a story without attribution announcing that the Justice Department did not plan to prosecute anyone, either in the newspapers or in the U.S. Navy,¹⁷⁹ as a result of their role in the revelations. Ironically, three days later the navy discovered that Johnston's own government had earlier declared him "unreliable" as a correspondent.¹⁸⁰ It was the same government, however, that subsequently forged the ultimate solution by addressing the correlation between the Johnston revelations and safeguarding communications intelligence.¹⁸¹

On 14 July, the special prosecutor, Mr. William D. Mitchell, transmitted his comprehensive "Report on the *Chicago Tribune* Case" to Attorney General Francis Biddle and Secretary of the Navy Frank Knox. His conclusion, after he had reviewed the law, the evidence, and the circumstances surrounding the "leak," ended by suggesting that "the game may not be worth the candle" and that the national effort would be better served if the case were dropped.¹⁸²

In the mind of the special prosecutor, none of his major reasons for dropping the case concerned the safeguarding of communications intelligence. Three salient points concerning the merits of the government's case were cited instead. All were related to the personal behavior of the principals: "1) Johnston said (on 8 June) that he got the information from a paper he found on his desk; 2) Two officers testified seeing Seligman working at a table in his quarters and that before him was a 'writing on Navy paper' giving a list of Jap vessels divided into a 'striking force, support force, etc.'; 3) If, as appears likely, some officer left a copy of that dispatch lying around, it may fairly be said there was as much carelessness on the ship as the *Tribune* was guilty of, and the Jury may think so."¹⁸³

No further action was taken until 15 August 1942, when the British Admiralty delegation in Washington sent a letter to Admiral King expressing concern that the Hearst revelations posed a danger to special intelligence methods, that a trial would further compromise this source, and that "preservation of this invaluable weapon outweighs almost any other consideration." King's reply reassured the British that the U.S. Navy would not do anything to increase the harm already inflicted by the original news story.¹⁸⁴ Five days later, the *Chicago Daily Tribune* carried the front page story, "U.S. Jury Clears Tribune." This story signaled the end of the grand jury investigation, though no reasons were ever given to the press by Mr. Mitchell, the special prosecutor.

What were the facts in the strange case of Stanley Johnston? As noted above, CINCPAC 311221Z May 42, was the message that passed CINCPAC's final appreciation of the Japanese order of battle for the Battle of Midway to the commanders of Task Forces 16 and 17, Admirals Spruance and Fletcher, respectively. The message was passed in communications channels available to other ships. Contrary to normal practices, which expected communicators to ignore traffic not addressed to their ship or commander, it was probably decoded by communications officers from the *Lexington* en route home from the loss of their ship at Coral Sea, who were acting as watch standers aboard the transport USS *Barnett* (AP11). Their reason for doing so may have been the presence of the *Lexington's* executive officer, Commander Morton Seligman. The message was given to Commander Seligman, who, apparently under the impression that he was authorized to do so, showed the message to Johnston, who had been aboard the *Lexington* during the battle and was being evacuated with the crew. Johnston and Seligman may have shared the same quarters aboard the *Barnett*.¹⁸⁵

On 7 June 1942, five days after Johnston's arrival in San Diego and one day after CINCPAC's "POA Communique #3" appeared announcing "a momentous U.S. victory," Johnston's story of U.S. foreknowledge of Japanese forces and their plans appeared in the

Chicago Tribune and other newspapers in Washington and New York.¹⁸⁶ The headlines that introduced the story on page 4A in the *Washington Times Herald* for 7 June 1942 revealed without a doubt that the author had been privy to secret material concerning Japanese intentions and strategy: "U.S. KNEW ALL ABOUT JAP FLEET. GUESSED THERE WOULD BE A FEINT AT ONE BASE, REAL ATTACK AT ANOTHER."¹⁸⁷

Though he could not know the extent of the duplicity involved, Walter Winchell, in his column in the *New York Daily Mirror*, characterized the *Tribune* as having "tossed security out the window." Understandably, Johnston's repeated denials that he had ever seen CINCPAC's message were received with cynical disbelief in Washington. Even his media superiors readily admitted they could not otherwise account for the similarities.¹⁸⁸

On 8 June, following an inconclusive meeting between high naval and newspaper officials, Johnston and his editor in Washington, Arthur Henning, met privately with Vice Admiral Russell Willson, Admiral King's chief of staff. It was during this meeting, as noted by the special prosecutor, that Johnston may have contradicted himself (Admiral Willson was to say that Johnston "confessed") and admitted seeing a list of Japanese vessels.¹⁸⁹ With the concurrence of the secretary of the navy and the president, Admiral King barred Seligman from promotion forever. Seligman retired in 1944.¹⁹⁰

OP-20-G's assessment of the damage done by the Johnston revelations took a long time to develop primarily because the Japanese themselves were slow to change their procedures. Nevertheless, OP-20-G maintained it was no mere coincidence that within a few weeks of the Johnston exposé drastic changes were made in virtually all Japanese codes and ciphers including the Japanese Fleet General-Purpose System, which changed on 15 August, only two months into the current cipher. Consistent with these changes, navy monitors also noted the omission of message serial numbers beginning on 15 August and a major change in the Japanese callsign system on 1 October 1942.¹⁹¹

All of the Japanese refinements were justifiably described by OP-20-G analysts as serious threats to their capability to produce current intelligence.¹⁹² Thus, it is difficult to say at this point that a single event occurred that prompted Admiral King to decide what course of action he would take. It may have been OP-20-G's concern that a jury trial would have even more painful consequences than those already experienced, or Admiral Willson's reading of the meeting he had had with Johnston, or the trauma of preparing highly classified testimony to be given before a Chicago grand jury. Clearly, Admiral King had decided not to implement the 7 July grand jury indictment when he responded to the British letter in August; and the evidence suggests, albeit weakly, that as early as 20 June he had begun to regret even seeking the indictment.

Throughout the Johnston affair, OP-20-G consistently sought a plausible cover story to minimize the damage already done. They appealed to King for future safeguards to prevent the loss of a vital advantage to the navy. King's reiteration of his restrictions on distribution on 20 June, while perhaps not all that OP-20-G wanted, strongly suggested that these appeals were heard.¹⁹³

Questions concerning the appropriate applications of communications intelligence to wartime emergencies of all types continued to arise. One problem addressed in December 1942 affected how newspapermen and radio broadcasters treated information they knew originated from enemy communications. A new paragraph was prepared for insertion in the "Code of Wartime Practices for the American Press" by the secretaries of war and navy and sent to the director of censorship for implementation:

ENEMY COMMUNICATIONS

To the end that the enemy may not have information concerning any success the U.S. may attain in deciphering his encoded or enciphered communications, no mention should be made of available or captured enemy codes or enemy ciphers, or about the intelligence gained from intercepting and studying enemy radio messages.

A prestigious trade journal gave immediate approval to the addition while at the same time registering the idea that after the war censorship should not continue. After citing a post-Pearl Harbor report that "monstrously exaggerated" U.S. losses as an example of irresponsible behavior, the editorial concluded with some ideas that are still relevant:

As between an ethical professional requirement that a journalist hold nothing back and a patriotic duty not to shoot one's own soldiers in the back, we have found no difficulty in making a choice. Freedom of the press does not carry with it a general license to reveal our secret strengths and weaknesses to the enemy.¹⁹⁴

It was not until 1985 that anyone from the Pacific COMINT centers received any formal recognition for his contribution to either the Coral Sea or Midway victories. In 1985, in response to a massive outpouring of affection from his friends, Joseph Rochefort received the Distinguished Service Medal posthumously from the secretary of the navy. For the rest, their epitaph was most fittingly expressed by a perfect stranger many years later:

History, with its flickering lamp, stumbles along the trail of the past, trying to reconstruct its scenes, to revive its echoes, and kindle with pale gleams the passion of former days. What is the worth of all this? The only guide to man is his conscience. The only shield to his memory is the rectitude and sincerity of his actions. It is very imprudent to walk through life without this shield, because we are so often mocked by the failure of our hopes and the upsetting of our calculations, but with this shield, however the fates may play, we march always in the ranks of honour.¹⁹⁵

1. Hattori, Vol. II, 131, recorded that Admiral Yamamoto had initially issued an order on 5 November 1941, directing that Midway be captured during the second phase of the war.
2. Morison, Vol. III, 58; Willmott, 116.
3. Willmott, 116.
4. Morison, Vol. III, 59; Fuchida, 66-71, 76; Willmott, 8-9, 16, 33. Willmott records passage of the Naval Expansion Act in June 1940; Morison records the Two-Ocean Navy Act in July 1940. The first bill authorized an expansion of 11 percent. The second bill authorized a 70 percent increase. Rear Admiral Julius Augustus Furer, USN (ret), *Administration of the Navy Department in WWII* (Washington, 1959), 57.
5. Fuchida, 71.
6. Hattori, Vol. II, 132.
7. Hattori, Vol. II, 133.
8. Fuchida, 48; Hattori, Vol. II, 133.
9. Fuchida, 78-84.
10. Fuchida, 91-3; Morison, Vol. IV, 169-75.
11. Fuchida, 72, 95.
12. SRMN012/L and H, 2, 4, and 5 March 1942, RG457, NA.
13. SRMN012/H and L, RG457 NA, 11 March 1942.
14. Dyer, 255.
15. SRH272, RG457 NA.
16. Com 14 140700Z, CINCPAC message file, RG38, NA and SRMN012/L, RG457, NA, each 14 May 1942.
17. HC IV W.3.25, 15 May 1942, letter from Redman to Murphy.
18. CINCPAC 130131Z, CINCPAC message files, RG38, NA.
19. Fuchida, 120.
20. SRH012, 4 March, and SRNM0123, 0126, 23 March 1942. All RG457 NA.
21. SRNM0473/B, 17 April 1942; SRMN005; and SRNM0697, 24 April 42. All RG457, NA.
22. SRH180 and SRH207, both RG457, NA.
23. Letter of 23 April 1942 to War Plans, HC IV W III.25.
24. SRNM 0643, 0668, and 0673; and SRNS 1517 (all of 27 April 1942), and all RG457 NA.
25. SRMN012/L, 27 April 1942, RG457 NA.
26. SRNS 1517, 1 May 1942, RG457, NA; Com 14 011108Z, May 1942, CINCPAC message file, RG38, NA.
27. SRH012, 2 May 1942, RG457, NA.
28. Morison, IV, 88.
29. SRH012 and SRNS1517, 4 May 1942, RG457, NA.
30. SRMN012/H, SRH272/H, 8 May 1942, both RG457, NA.
31. SRNS 1517, 9 May 1942, RG457, NA.
32. SRMN012/L, SRH272/H, 9 May 1942; RG457, NA.
33. COMINCH 121945Z May 1942, CINCPAC message file, RG38, NA.
34. SRNS1517, 13 May 1942, RG457, NA.
35. SRMN005, OP-20G message dated 15 May; SRMN012/H, messages translated and published 14-20 May. All RG457, NA. See also OPNAV 151745Z, CINCPAC message file, RG38, NA.
36. SRMN012/H, SRNS1517, 13 May 1942, RG457, NA.
37. COMINCH 141527 May, found in Nimitz Command Summary entry for this date. HC IV W II 2.2.
38. SRMN012/L, 14 May 1942, RG457, NA.
39. 140639, May Nimitz Command Summary.
40. Morison, Vol. IV, 80; COMINCH 141527Z, May 1942, CINCPAC message file, RG38, NA.

41. Prange, 46-47.
42. Potter, 79-80; and Layton interview, 221-24 and 231-32.
43. COMGENHAWDEPT to CINCPAC 251930Z May 1942, CINCPAC message file, RG38, NA.
44. Potter, 101.
45. Nimitz Command Summary, 16 May 1942, compared to COMINCH 141527Z May 1943 in the same document. For evidence of how closely Hawaii and Melbourne agreed on the Japanese threat to Midway, see also 121945Z May 1942, Nimitz Command summary, HCIVWII.2.2. See also SRMN012/H and SRNS 1517, both 13 May, and SRMN012/L 15 May 1942, all RG457, NA.
46. COMINCH to CINCPAC, 152130Z May 1942, Nimitz Command Summary, Book 1, HCIVWII.2.2.
47. Ibid.
48. Morison, Vol. IV, 80.
49. CINCPAC 160307Z to CTF16, CINCPAC Message file, RG38, NA.
50. Nimitz Command Summary, 16 May 1942, HC IV WII.2.2.
51. Ibid.
52. CINCPAC 160325Z May 1942, Nimitz Command Summary, Book 1, HCIVWII.2.2 and CINCPAC message file, RG38, NA.
53. COMINCH to CINCPAC, 172220Z May 1942, Nimitz Command Summary, Book 1, HCIVWII.2.2.
54. COMINCH 172221Z May 1942, Nimitz Command Summary, Book 1, HCIVWII.2.2.
55. SRNS1517, 18 May 1942, RG457, NA.
56. Com 14 181900Z May; Com 14 to COMB 020934Z June 1942; all CINCPAC message file, RG38, NA; SRH 272, 18 May 1942, and SRNS1517, 18 May 1942; both RG457, NA.
57. CINCPAC 180403Z, 180357Z and 182145Z May 1942, respectively; Nimitz Command Summary, Book 1, HCIVWII.2.2 and CINCPAC message file, RG38, NA. CTF 16 was originally ordered to return to Hawaii after Halsey was sighted by Admiral Inouye's patrols. CINCPAC 150023Z May to All TF Cmdrs Pac, and Com 14 152316Z to COMB reflect Japanese reactions; CINCPAC to CTF16 160307Z May 1942. All messages are in the CINCPAC message file, RG38, NA.
58. Radio Intelligence Passed Outside OP-20-G, HC IV W.3.25; and SRMN005, RG457, NA.
59. 15 May 1942 memo for Commander Murphy from Commander John R. Redman, Chief OP-20-G, HC IV W.3.25.
60. Such a confrontation can be inferred from the 20 May 1942 letter to OP-20-GI signed by Commander G. W. Daisley in SRMN005, RG457, NA.
61. Ibid.
62. Lord, 21; Morison, Vol. IV, 167-168; both address this issue, and the various alternative identities are seen in the formal and informal correspondence in HCIVWIII.2.25 and SRMN005, RG457, NA.
63. Layton, 421-422.
64. Belconnen to COMB 212245Z May, CINCPAC message file, RG38, NA; SRNS 1517, 22 May 1942. RG 457, NA. The quoted extract can be found in HC IV W VII.19. Another version of this text will also be seen in SRH012, Vol. I and SRMN005, RG457, NA.

65. Com 14 to COMB 220732Z, CINCPAC message file, RG38, NA; See also Layton, 421-22; and Reminiscences, HCIV W X.1, in which Rochefort noted that Hypo was very impatient with those who would not accept the definition of AF as Midway, particularly when they had the same information.

Admiral Turner was relieved as Chief of War Plans on or about 25 May 1942. He was later given command of an amphibious force that subsequently assaulted Guadalcanal. His relief on the eve of a great naval battle is difficult to explain in a positive context, particularly in light of his tense relationships with the Navy's Communications Directorate and others and his apparent isolation from Admiral King. There is some confusion over when his relief actually occurred. His biographer, Dyer (263) said 25 May, but SRMN005 (RG457, NA), a collection of papers related to Midway, contains a situation report signed by Turner dated 29 May. Larrabee (201) indicated reasons outside the navy for his dismissal. According to Larrabee, he was removed at the insistence of General George C. Marshall, COS U.S. Army. In March 1942, according to Larrabee, General Marshall convinced the president that Turner, as a member of the Joint Planning Staff, was too difficult to work with. Larrabee (190) also asserted that in 1942 King shifted Pacific war planning functions to Nimitz after Turner was relieved.

66. Com 14 to COMB 190346Z; Belconnen to COMB 190840Z; COM 14 to COMB 190948Z; Belconnen to COMB 191610Z; all May 1942 and all in CINCPAC message file, RG38, NA; SRH272, 18 May 42; SRMN012/H, 20 May 42; SRMN012/H&L, 21 May 1942; and SRNS 1517, 21 May 1942, all RG457, NA; and CINCPAC OPPlan 29-42, 20 May 1942, "Survey of Opposing Strengths," HCIVWVII.18.

67. CINCPAC to CTG2.1, 222345Z May 1942; CINCPAC 230235Z, May 1942; both in CINCPAC message file, RG38, NA; Morison, Vol. IV, 166 and 170; Willmott, 327; Lundstrom, 175. For Nimitz' estimates and the influence of COMINT, see Com 14 231922Z May 1942, CINCPAC message file, RG38, NA; SRMN012/L 24 May 1942, RG457, NA; Nimitz' Command Summary 23 May 1942, HCIVWII.2.2; SRH012, 23 May 1942, RG457, NA; CINCPAC Bulletin #74, 280057Z May 1942; CINCPAC to CTF8, 280245Z May 1942 and 282153Z May 1942, all in CINCPAC message file, RG38, NA. For Theobald's treatment of COMINT, see CTF8 "Estimate of the Situation," paragraph 14, found in U.S. Navy War College Study of Midway, HCIV W VII 6.

68. SRNS 1517, 21 May 1942, RG457, NA.

69. Negat predicted the impending departure of this fleet's two battleship divisions, 1 and 2, from Kure in a message on the 21st, but the significance of this information was not emphasized. OPNAV 211639Z to CINCPAC and COMSOWESPACFOR, CINCPAC message file, RG38, NA; Hoyt (286) discusses the role of Yamamoto and the Main Body during this campaign, as do Morison and Fuchida.

70. CINCPAC 220135Z, CINCPAC message file, RG38, NA.

71. CINCPAC 220219Z, CINCPAC message file, RG38, NA.

72. COMSOWESPAC 230725Z May 1942, CINCPAC message file, RG38, NA.

73. Com 14 220338Z May 1942 to COMB, CINCPAC message file, RG38, NA.

74. COMSOWESPAC 240549Z, CINCPAC message file, RG38, NA.

75. COMINCH to Spenavo London, 181255Z May 1942, info COMSOWESPACFOR and CINCPAC, CINCPAC message file, RG38, NA.

76. Potter, 88; Willmott, 342.

77. Instructions for the *Tangier* can be found in 280333Z, May 1942 CINCPAC to the *Tangier* and COMSOWESPAC, CINCPAC message file.

78. Fuchida, 130-33.

79. SRNS 1517, 24 May 1942, RG457, NA.

80. SRH012, 24 May 1942, RG457, NA; Com 14 to COMB 252126Z May 42, CINCPAC message file.

81. CINCPAC to CTFs 4, 9, 17, 16, 022319Z June 1942, CINCPAC message file, RG38, NA.

82. The date of the discovery can be inferred in Potter (82) when he described a meeting on 25 May between Nimitz and Rochefort to which the latter arrived late and in a disheveled condition ostensibly because he was waiting for the cipher solution. This is probably the same meeting Layton places on the 26th. In Com 14 to COMB, 272118Z and 272158Z May 1942, the solution was shared with other COMB addressees (CINCPAC message file, RG38, NA). It would have been unusual for one center to withhold important information for two days.

83. Layton, 427-28; Com 14 to COMB 272058Z May 1942, CINCPAC message file, RG38, NA.

84. Potter, 82, 83, 87.

85. SRNS 1517, 25 May 1942, RG457, NA.
86. CINCPAC to COMINCH 270209Z May 1942, CINCPAC message file, RG38, NA.
87. CTF7 to *Gudgeon*, 260015Z, May 1942; CINCPAC message file, RG38, NA
88. CINCPAC 260345Z, CINCPAC message file.
89. Com 14 to COMB 262244Z May 42, CINCPAC message file, RG38, NA.
90. Lundstrom, 171.
91. Morison, Vol. IV, 81.
92. OPNAV to COMB 262240Z May 1942, CINCPAC message file, RG38, NA.; See also Belconnen to COMB 280428Z, May 1942, in same file.
93. SRMN012H, 27 May 1942, RG457, NA.
94. Com 14 280040Z, May 1942, CINCPAC message file, RG38, NA.
95. Com 14 to COMB 282020Z May 1942; OPNAV to COMB 281650Z May 42, CINCPAC message file, RG38, NA.
96. SRNS 1517, 28 May 1942 RG457, NA; Com 14 to COMB 282009Z May 1942, CINCPAC message file, RG38, NA; and SRH012, RG457, NA, same day.
97. Com 14 282132Z, May 1942, CINCPAC message file, RG38, NA.
98. CINCPAC Bulletin 74, 280057Z May 42, CINCPAC message file, RG38, NA.
99. See CINCPAC to CTF8 280245Z and 282153Z May 42, CINCPAC message file, RG38, NA.
100. Morison, Vol. IV, 170; and CTF 8 Estimate of the Situation, para 14, USNWC.
101. Deployment of forces from Morison, Vol. IV, 170; arrival of Theobald in Alaska from Nimitz Command Summary, HCIVWII.2.2, May 22 when he departed from Hawaii.
102. OPNAV to COMB 292045Z May 1942, CINCPAC message file, RG38, NA.
103. OPNAV to COMB 290415Z May 1942, CINCPAC message file, RG38, NA.
104. Com 14 to COMB 290214Z, 290216Z and 291142Z May 1942, CINCPAC message file, RG38, NA. Corregidor ended operation on 6 May 1942.
105. Com 14 to COMB, 292008Z May 1942, CINCPAC message file, RG38, NA.
106. Bulletin Number 75, CINCPAC 290231Z May 1942, CINCPAC message file, RG38, NA.
107. CINCPAC to COMINCH 290419Z May 1942 and CINCPAC to all TFs 291409Z May 1942, both CINCPAC message file, RG38, NA.
108. Com 14 to COMB 292226Z May 1942, CINCPAC message file, RG38, NA.
109. Com 14 to COMB 292234Z May 1942, CINCPAC message file, RG38, NA.
110. CINCPAC to CTF8 292029Z May 1942, CINCPAC message file, RG38, NA.
111. CINCPAC 282151Z May 1942, CINCPAC message file, RG38, NA.
112. 282123Z May 1942, CINCPAC message file, RG38, NA.
113. 291621Z May 1942, CINCPAC message file, RG38, NA.
114. COMNORWESSEAFRON to CTF8 311429Z May 1942, CINCPAC message file, RG38, NA.
115. 292002Z May 1942, CINCPAC message file, RG38, NA.
116. Fuchida, 119.
117. Ibid., 122.
118. Ibid., 119.
119. Ibid., 123-24.
120. Ibid., 119-120; Deployment of TF 17 under Admiral Frank Jack Fletcher, was ordered for 1830 local time 30 May 1942 in CINCPAC 290205Z May 1942, CINCPAC message file, RG38, NA.
121. CINCPAC OpOrder 29-42, 27 May 1942, gave the Japanese rendezvous point at 27N, 170E. See also CINCPAC to CTF 16, 300227Z May 1942; and CINCPAC Bulletin Number 76 sent to all TF Cmdrs, etc., 300241Z May 1942, all CINCPAC message file, RG38, NA.

122. Belconnen to COMB 300440Z May 1942, CINCPAC message file, RG38, NA.
123. Operations Plan 29-42 published on 2 June. CINCPAC to CTFs 4, 9, 17, 16, 022319Z, June 1942, CINCPAC message file, RG38, NA.
124. OPNAV to COMB 302025Z, May 1942, CINCPAC message file, RG38, NA.
125. Com 14 to COMB 310545Z, May 1942, CINCPAC message file, RG38, NA.
126. Com 14 to COMB 310934Z, May 1942, CINCPAC message file, RG38, NA.
127. Com 14 to COMB 312154Z, May 1942, CINCPAC message file, RG38, NA.
128. COMALSEC to CINCPAC, CTF8 022130Z, CINCPAC message file, RG38, NA.
129. CINCPAC to CTFs, etc., 020347Z, CINCPAC message file, RG38, NA.
130. Dutch Harbor to CTF 8, 021430Z June 1942, CINCPAC message file, RG38, NA.
131. Com 14 to COMB 020024Z June 1942, CINCPAC message file, RG38, NA.
132. Com 14 to COMB 020024Z June 1942 and Belconnen 020335Z, 020426Z and 020630Z June 1942, all CINCPAC message file, RG38, NA.
133. Ibid.
134. Ibid.
135. Morison, Vol. IV, see map after p. 94.
136. OPNAV to CINCPAC, etc., 022231Z June 42, CINCPAC message file, RG38, NA.
137. CINCPAC to All CTFs, 031637Z; CINCPAC to Midway, information to all CTFs 031855Z, repeated 031927Z; COMNOWESTSEAFRON to CINCPAC, COMINCH 031941Z; NAS Dutch Harbor to CTF8, Com Alaskan Sector, Casco 032215Z and to CTF8, 040030Z; all June 42, all CINCPAC message file, RG38, NA.
138. Midway to CINCPAC, 032135Z, June 1942, CINCPAC message file, RG38, NA.
139. CINCPAC to CTFs, info COMINCH and COMGENHAWDEPT 032153Z, June 1942, CINCPAC message file, RG38, NA.
140. CINCPAC to CTFs, info COMINCH, 032207Z and 040017Z June 1942, CINCPAC message file, RG38, NA.
141. CINCPAC 040101Z June 1942, CINCPAC message file, RG38, NA. Daylight in Hawaii in June occurs roughly between 1700Z and 0500Z. Allowing for Daylight Saving Time, i.e., War Time, there would have been a twelve- instead of an eleven-hour difference between GMT and the time at Midway and an eleven-hour difference in Hawaii.
142. Com 14 to COMB 030046Z June 1942, CINCPAC message file, RG38, NA.
143. Ibid. See also CINCPAC message file, RG38, NA, 030047Z June 1942.
144. CINCPAC to Midway, CTFs 4, 7, 9, 16, 17 030325Z, June 1942, CINCPAC message file and CTF 7 to TF 7 030619Z June 1942, CINCPAC message file, RG38, NA.
145. CINCPAC message file, RG38, NA, 040801Z June 1942 [032301W June 1942].
146. OPNAV/COMINCH to COMB Adees, 042000Z June 1942, CINCPAC message file, RG38, NA.
147. CINCPAC to all CTFs 041035Z, June 1942, CINCPAC message file, RG38, NA.
148. CINCPAC 041809Z June 1942/0609 on Midway, 0709 in Hawaii, CINCPAC message file, RG38, NA, An 1804Z sighting report gave the distance from Midway as 180 miles. CINCPAC message file RG38, NA, 041857Z June 1942.
149. CINCPAC to COMWESTSEAFRON, COMNORWESTSEAFRON, COMGENHAWDEPT 041857Z June 42, CINCPAC message file, RG38, NA.
150. Fuchida, 86; Willmott, 343; and Morison, Vol. IV, 84.
151. SRMN012/H, 4 June 1942, RG457, NA.
152. Com 14 to COMB 042136Z June 1942; CINCPAC to TFs 11, 16, 17, 042349Z; Com 14 to COMB 042358Z; Com 14 to NAVAIRSTA Midway 050059Z [041459HWT]; and CINCPAC to CTF 16, CTF 17, 050233Z [041733HWT] all June 1942 and all CINCPAC message file, RG38, NA.
153. See, for example, CINCPAC to Midway 042340Z [1440HWT]; CINCPAC to all CTFs 050045Z [041545HWT], all June 1942 and all CINCPAC message file, RG38, NA.

154. See CTF 16 to CINCPAC 050204Z June 1942 [1604 MWT, 4 June 1942]; CINCPAC to Midway 050335Z June 1942 [1835 HWT, 4 June 1942] and; CINCPAC to all CTFs COMGENHAWDEPT, COMINCH, and COMSOPAC 050355Z June 1942 [1855HWT, 4 June 1942], all in CINCPAC message file, RG38, NA.
155. SRMN012/H, 6 June 1942, RG457, NA.
156. SRNS1517, 6 June 1942, RG457, NA.
157. CINCPAC message file, RG38, NA, 051915Z [051015W] June 1942.
158. Morison, Vol. IV, 178-79.
159. Morison, Vol. IV, 179, describes how Admiral Nimitz was kept abreast of developments by these reports.
160. SRMN012/H 6 June 1942, RG457, NA.
161. Willmott, 508.
162. CINCPAC War Diary, 6 June 1942, ONI Review, May 1947.
163. Buell, 146-47.
164. SRNS1517/RI, 7 June 1942, RG457, NA.
165. SRMN012/H 7 June 1942, RG457, NA.
166. SRMN012/L, 7 June 1942, RG457, NA.
167. CINCPAC War Diary, 7 June 1942, ONI Review, May 1947; and Willmott, 510.
168. SRNS1517/RI, 8 June 1942; SRMN012/H, 8 June 1942, both RG457, NA.
169. SRMN012/L, 8 June 1942, RG457, NA.
170. SRMN012/H, 8 June 1942, RG457, NA.
171. Potter.
172. Fabian interview, NSA Oral History, OH 09-8.3
173. SRH 289, RG457, NA.
174. CINCPAC170335Z May 1942, CINCPAC message file.
175. CINCPAC to COMINCH 032043Z June 1942, CINCPAC message file.
176. HC IV W II .2.2 CINCPAC's message of 311221 May contained his final appreciation of the Japanese order of battle prior to the Battle of Midway.
177. Ibid.
178. SRH012, Vol. II and accretion to Vol. II, RG457, NA.
179. HC IV W VII.2.
180. Ibid.
181. Ibid.
182. HC IV W VII.2. Hereafter, Mitchell report. (U)
183. Ibid.
184. Ibid.
185. Mitchell report.
186. Potter, 82, 103, and SRH012, Vol. II and accretion to Vol. II, show several points of view concerning the situation on the *Barnett*. This characterization of the role of Commander Seligman is also based on the eyewitness account of Rear Admiral Robert E. Dixon. As CO of the *Lexington's* Scout-Bomber Squadron Lieutenant Commander Dixon told the FBI on 8 or 9 June 1942 that he had witnessed Johnston taking extensive notes from CINCPAC's 31 May 1942 message. Robert Mason, *Eyewitness*, U.S. Naval Institute Proceedings, June 1982, 40-45.)
187. HCIV W VII.2.
188. *New York Daily Mirror*, 7 July 1942, and Mitchell report.
189. HC. IV W VII.2.
190. Mason, *Eyewitness*.
191. SRH012, Vol. II, Chapter V, 286, and Appendix, 392, RG457, NA.

192. Ibid.

193. SRH012 Vol. II RG457, NA.

194. *Whaley-Eaton American Letter*, 12/26/42. These quotations are also in SRH012 Vol. II, Chap. V, 288-91. The *Whaley-Eaton American Letter* was a business-oriented newsletter published by a company founded in 1918 by Huntington Whaley. *Dallas Magazine*, March 1986, NEXUS Database.

195. John Colville, *Fringes of Power: 10 Downing Street Diaries 1939-1955*, New York: W.W. Norton and Co., 1985.

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 - c. SRH207, Evacuation of USN COMINT Personnel from Corregidor in World War II.
 - d. SRH235, COMINT Contributions to Submarine Warfare.
 - e. SRH264, Wenger Lecture to Naval War College.
 - f. SRH268, Redman Correspondence.
 - g. SRH272, CINCPAC Enemy Activities File.
 - h. SRH278, Hypo War Diary 1942.
 - i. SRH279, Communications Intelligence Organization 1942–1946.
 - j. SRH289, Mobile RI Unit Activities.
 - k. SRH313, Mobile RI Units with TF16, 1–24 May 1942.
 - l. SRMD009, JICPOA Administrative Files January 1942–September 1945.
 - m. SRMN004, CINCPAC Intelligence Bulletins, 16 March–1 June 1942.
 - n. SRMN005, File of Memoranda and Reports Relating to the Battle of Midway, the “K” Campaign, and the Aleutian Operation.
 - o. SRMN008, CINCPAC Combat Intelligence Bulletins and Radio Digests, 1 March–31 December 1942.
 - p. SRMN012, Com 14 T/I Summaries and Fleet Intelligence Summaries prepared by Hypo and Layton, respectively. Frequently Layton’s contribution was embellished by a comment from CINCPAC War Plans. 16 July 1941–30 June 1942.
 - q. SRMN013, CINCPAC Intelligence Bulletins, 1 June 1942–23 September 1945
 - r. SRMN015, The Establishment of Advanced Intelligence Centers, May 1942–August 1943.
 - s. SRNM001-0451, Messages intercepted, decoded, deciphered, and translated by Hypo and Melbourne with comments by OP-20-GI. Some translations are also by OP-20-GZ; 13 March–15 April 1942.

- t. SRNM0452-0952, Messages from the period 16 April–9 May 1942, from Hypo, Station C, Melbourne, and OP-20-GY.
- u. SRNM0953-1141, Daily Summaries and Translations 9–18 May 1942.
- v. SRNM1142-1292, Translations from the British base at Colombo and from the Admiralty concerning Japanese Navy activity in the Indian Ocean, Bay of Bengal, and the Pacific west of the Marshalls between 21 January and 5 June 1942.
- w. SRNS0001-0078, Summaries prepared by OP-16-F-2 (ONI) based on COMINT reports of Japanese Navy activities 14 April–30 June 1942.
- x. SRNS 1290-1458, Summaries of Japanese naval dispositions and intentions 1942–1945.
- y. SRNS1459-1516, Traffic Intelligence [T/A] summaries of Japanese Naval Forces, 1942–1946.
- z. SRNS1517, Daily TI and CI [translations] summaries from Melbourne 20 March–8 June 1942.
- aa. SRNS1518, Operational and Administrative messages from Melbourne, March 1942–March 1944.

2. Unit Histories

- a. *History of OP-20-GT-P (Traffic Analysis-Pacific)*. OP-20-GT-P was established in March 1942. Prior to that time no traffic analysis was conducted in OP-20-G. From 1 March to 10 April 1942, traffic from Hypo was sent to OP-20-G via air mail. Traffic from Bainbridge, Washington was sent by teletype. History Collection IVWI.5.8. This history is classified TS.
- b. *History of OP-20-GYP-1 (Cryptanalysis-Pacific)*. This history was written after the war, probably by Stuart McClintock. It concerns the activities of the Pacific cryptanalysis unit in Washington. It contains information concerning the steps leading to success against the Japanese Navy General-Purpose Code, JN 25. History Collection IVWI.5.12 and 5.13. This history is classified TS.
- c. *History of OP-20-GI-P (Combat Intelligence Pacific)*. History Collection IVWI.5.3. This history is classified.

3. Record Group 38, National Archives

- a. CINCPAC message files. This file contains the daily classified messages originated by headquarters CINCPAC for the period covered by this chapter.
- b. Distribution of Intelligence by ONI, Box 8-Z/EF28(298). A March 13 1942 memorandum from OP-16 (ONI) to COMINCH responded to a message from

CINCPAC (Originated by Com 14) pertaining to duplication in reporting and lack of security. As a result, OP-16 discontinued its daily bulletin.

- c. ONI Intelligence Reports, Box A8-2/EF(294) Folder A8-2/EF January-April 42. This folder contains out-of-date reports of sightings of Japanese ships by American submarines at a time when much more accurate and timely reports were available in COMINT reports from the Pacific centers. An ONI Japanese Navy Order of Battle is in the prewar format. It does not reflect the current organizational structure, improperly showing carriers in the numbered fleets instead of in the First Air Fleet and Carrier Strike Forces.
 - d. Records of Headquarters COMINCH, Box A8-2, Folder 1: This box contains several items dated February 1942 that reflect ONI's efforts to produce intelligence reports from non-COMINT sources such as the news media and State Department reports.
 - e. Coral Sea, A British View. A Report of 22 May 1942 from Chief of Intelligence William Donovan to Secretary of the Navy Frank Knox. Box A8-2/EF(296).
4. CNO Summaries of Japanese Naval Activities 14 April-30 June 1942, White House Map Room copies of ONI-prepared daily reports. Unintentionally, they reveal differences of opinion between ONI, Hypo, and OP-20-G.
5. Rudolph J. Fabian, Commander, USN (ret), OIC Melbourne RI center: On 10 and 12 August 1942, Fabian and other officers and men in the RI center in Melbourne were recommended for recognition by Washington (Fabian for a Distinguished Service Medal) for their outstanding work in connection with the Coral Sea and Midway actions. COMSWOWESPAC letter 00204, August 10, 1942, and COMSOWESPAC message 220751Z August 1942. Franklin Delano Roosevelt Map Room. The recognition was not forthcoming!
6. Nimitz Command Summary, 1942, Volumes I and II. This record clearly reflects the influence of COMINT on the command decisions made by Admiral Nimitz. History Collection IVWII.2.2.
7. CINCPAC OPPlan 23-42, 29 April 1942. This plan controls the activities of TF16 (Halsey) and its relationship to TFs 17 (Fletcher) and 12.
8. "Control of Dissemination and Use of Radio Intelligence by the U.S. Navy in 1942." This file in the history collection contains a 1942 memorandum from COMINCH directing that messages containing COMINT must be burned after reading. IVQ.5.1
9. "Potential Value of Radio Intelligence in Naval Battles as Illustrated in the Battle of Midway." A report prepared for Commander Joseph N. Wenger, D/Chief OP-20-G, on Nov 9. 1942, by Ensign John V. Connorton.
10. "U.S. Navy COMINT Organization and Manpower, 7 December 1941-May 1942." History Collection IVWI.3.20

11. "Organization of OP-20-G, 1935-1950." For the period February-June 1942, this file contains the structure and names of persons in charge following the February 1942 reorganization of OP-20-G. History Collection IVWI.4.1.
12. Frank Jack Fletcher, Admiral USN, Battle Report after Coral Sea, 28 May 1942. History Collection IVWVII.8.1
13. "Communications Procedures and Daily COMINT Summaries from Hypo." This file contains messages dated March 1942 between Washington and Honolulu. History Collection IVWII.3.4.
14. "Cryptanalytical and Decryption Operations." A 1941 memorandum on this subject from OP-20-G to VCNO criticized the odd-even arrangement between Army and Navy, mentioned the peacetime rivalry, and the Army's light workload in contrast with the Navy's expanding efforts against a variety of targets. The Navy's right to distribute intelligence to the White House is also mentioned. History Collection IVU.1
15. Intercept Station C From Olongapo through the evacuation of Corregidor, 1929-1942. This booklet was published by the Naval Cryptologic Veterans Association. It contains articles written by officers and men who served at Station C during the above period.
16. Forest R. Biard, Captain USN(ret). A personal account of his experiences as the linguist in a radio intelligence detachment aboard the *Yorktown* during the Battle of the Coral Sea. Written after the event, this narrative contains the only known minute-by-minute account of the battle from the point of view of the linguist and the intercept operators.

Oral Histories

- a Thomas H. Dyer interviews 1-6 by Paul Stilwell, Oral Historian, U.S. Naval Institute, Annapolis Maryland, between August and September 1983. Dyer was second in command under Rochefort during the period covered by this chapter. (U)
- b. Stuart McClintock, cryptanalyst in OP-20-G, who worked exclusively on JN-25 messages beginning two weeks after Pearl Harbor. NSA OH #03-81. (TSCW)
- c. Joseph J. Rochefort, OIC of the Hawaii RI center during the period covered by this chapter. In this interview, conducted by the U. S. Naval Institute, a partial chronology of his career can be reconstructed. History Collection IVWX.1 (U)
- d. Durwood K. (Texas) Rory, Chief Master at Arms, 14th Naval District. After the Japanese attack on Pearl Harbor, when manpower requirements at Hypo increased exponentially, Rory was delegated to personally recruit new workers for Hypo from the replacements who arrived in Hawaii almost daily. His success rate became legendary after he selected and assigned band members from the battleship *California*. NSA Oral History OH 27-84 (S-CCO)

- e. Wesley A. (Ham) Wright, Captain USN (ret). NSA Oral History, OH11-82. (FOUO)
- f. Rudolph T. Fabian, Captain, USN (ret). NSA Oral History, OH09-83. (S-CCO)

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- e. SRH278 War Diary, CIU Pacific 1942.[Hawaii].
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- i. SRMN012, Com 14 TI Summaries with Fleet Intelligence Summaries.
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- k. SRNS1517, Daily TI and CI Summaries from Melbourne, 20 March-8 June 1942.

2. Record Group 38, National Archives

- a. CINCPAC message file. This file contains all classified messages sent and received by CINCPAC during the period covered by this chapter.
- b. Sources of Intelligence: A memorandum from Chief of Staff, Naval Forces SOWESPACFOR area indicated that by 26 June 1942, air reconnaissance and photography were the major sources of information on enemy bases, dispositions, air strength and air losses. The memorandum also indicates that reconnaissance flights were flown to confirm intelligence reports from a third unspecified source other than radio Tokyo.
- c. A memorandum from the Commandant of the Marine Corps (CMC) dated 28 August 1942, addressed to "Subchief of Naval Operations" and meaning ONI or OP-16-X; subject: "Establishment of Joint Intelligence Centers." This memorandum conveyed two earlier letters from CMC to COMINCH dated 24 March and 10 April 1942, same subject. (Sec Nav/CNO Correspondence)
- d. 24 March 1942 memorandum from [General] T. Holcomb, CMC to COMINCH, subject: Establishment of Advanced Joint Intelligence Centers.
- e. 13 April 1942 memorandum from COMINCH to CINCPAC Fleet, subject: Establishment of Joint Intelligence Centers.
- f. 28 May 1942 memorandum from CINCPAC Fleet to COMINCH, subject: Establishment of Advanced Intelligence Centers. This memorandum from Admiral Nimitz to Admiral King nonconcurrs in the scope of the CMC proposals. Nimitz advocated an intelligence center only in Hawaii centered on the Com 14/Hypo organization. This center was to be established first and possibly followed by others.
- g. Records of CNO/COMINCH: Under the file heading "Air Combat Intelligence Officers" will also be found the basic CMC/COMINCH correspondence of March-April 1942. Reviewed by RAdm J.H. Towers, Chief of the Bureau of Aeronautics, it generated a separate plan for providing air combat intelligence officers in the

proposed Joint Intelligence Centers. Towers also tasked BuAir to train the officers who would be selected to serve in the centers. (1 May, 14 May, 21 May 1942),

- h. 14 July 1942 memorandum from COMINCH to VCNO(ONI) subject: Air Combat Intelligence Officers. This memorandum agreed with CINCPAC's wish to have the center in Hawaii completely operational before other centers were opened in the Pacific. An accompanying letter from CINCPAC to COMINCH stated that the Hawaiian Center (ICPOA) was up and running under Com 14.
 - i. On 31 March 1942, COMINCH/CNO approved establishment of an Aviation Intelligence Branch in the BuAir to develop and disseminate "Technical Aviation Intelligence" ashore and afloat. The normal sources of this information were ONI and photography.
 - j. 10 April 1942, Admiral R. K. Turner, Chief of War Plans for Admiral King, proposed that ONI create an Intelligence Staff for Admiral Ghormley, newly appointed Commander, South Pacific Area, whose headquarters were to be located at Auckland, New Zealand, with an advanced base at Tongatabu.
 - k. In May 1942, Commander Fitzgerald Greene, ONI, was sent to New Zealand to operate a center staffed by 300, including an RI element!
 - l. A memorandum dated 5 June 1942, from MGen George V. Strong, ACOS/G2, to COS George C. Marshall, U.S. Army, subject: Cooperation and Collaboration with the Navy on Military Intelligence. Two covering notes from Admiral Russell Willson, ONI, probably to Admiral Ernest J. King, COMINCH, note a negative Navy reaction after seeing the Army memorandum. Records of COMINCH Box A8-2.
3. Nimitz Command Summary 1941-1942. An official CINCPAC record of certain ideas, plans and messages concerning events in the Pacific. A daily record of important messages from 22 February to 8 June 1942. History Collection, IVWII.2.2
4. History of OP-20-GY-P-1 (Cryptanalysis-Pacific). This classified history is in the history collection IV WI.5.12 and .5.13.
5. History of OP-20-GT-P (Traffic Analysis-Pacific). This classified history is in the history collection. IV WI .5.8.
6. CNO Summaries of Japanese Naval Activities (Midway) 14 April-30 June 1942. These daily intelligence summaries were prepared by ONI and located in the records of the White House Map Room.
7. CINCPAC Intelligence Bulletins (Midway) 16 March-1 June 1942, Daily. This is OP-20-GI's copy of the Bulletin. Cryptologic Archives Holding Area, ACC#17907A, Location CBKH44.

Oral Histories

- a. Interview of Joseph Rochefort by the Naval Institute. History Collection, IVWX.1.
- b. W. A. (Ham) Wright, NSA Oral History, 11-82.
- c. Thomas H. Dyer. Interviewed by Paul Stilwell, Oral Historian, U.S. Naval Institute.
- d. Adm. Edwin Layton. Interviewed by Mr. Robert Farley, Oral Historian, National Security Agency. NSA OH02-83 and follow-up, 32-83.

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